AN EXCLUSIVE EDITORIAL BY GEN. H. H. ARNOLD

FLYING

OCTOBER 1947 • 25 CENTS

100 New Photographs

Two FLYING Holidays

California Sierras • San Juan Islands

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Kollsman presents a Business Builder for Operators . . . The New Tacholog

Kollsman presents its *new* Tacholog — a tachometer with a built-in engine hour counter — as

. . . a more accurate, reliable and durable tachometer for private planes . . .

. . . an instrument to provide the operator or private owner with an easier and more accurate means of keeping track of engine time, eliminating the need for an aircraft or engine log . . .

. . . a means of giving you engine hours together with regular r.p.m. reading — using only the regular tach connection . . .

It is also a tool which operators can use to build up rental business and make their planes available to the thousands of pilots who have *occasional* use for an aircraft for business trips, vacation trips and just for flying.

. . . an instrument which, by providing an accurate indication of engine hours *in proportion to engine wear* for the total time the aircraft is away from home, gives the operator a sound basis for operating, discourages misuse and rewards the conservative pilot.

Kollsman Tachologs are now available. Pilots, plane owners, operators and manufacturers are invited to write for further information.

KOLLSMAN AIRCRAFT INSTRUMENTS

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Skyway or Highway

B.F. Goodrich

FIRST IN RUBBER

Rubber erases some old ideas about flying

FLYING used to be considered a "fair weather" proposition. During a good part of the year, icing conditions kept planes on the ground.

Then B. F. Goodrich engineers worked out a way to remove ice from wings and tail surfaces. Equipped with B. F. Goodrich De-Icers, airlines found they could operate all year 'round. And as a result, these rubber De-Icers now protect the wings and tails of almost every airliner and many smaller planes as well (photo upper left).

Today, B. F. Goodrich rubber is erasing other old ideas about flying too. The newest B. F. Goodrich tire is a good example. It's the smallest tire ever used on a plane's main wheels. Yet it lands a 10,000 pound load at the fastest speeds in air history!

B. F. Goodrich Expander Tube brakes combine with B. F. Goodrich tires, tubes and wheels to improve landings, take-offs and taxiing for all types of planes (photo upper right).

Added safety is provided by a new B. F. Goodrich product—electrically heated rubber. It keeps ice from forming on propellers, cowlings, water tanks, hydraulic lines, and other installations. And it has proved the most efficient way of getting the right amount of heat to a specific spot (photo lower left).

For comfortable, attractive, durable cabins, B. F. Goodrich supplies sponge rubber seats, cushioning flooring materials, and interior trim for ceilings, walls, arm rests, rugs and many other uses (photo lower right).

Many, many more B. F. Goodrich products are widely used on today's planes. And B. F. Goodrich is constantly working to develop new products to make planes ever better, cheaper and safer. *The B. F. Goodrich Company, Aeronautical Division, Akron, Ohio.*

B.F.Goodrich

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FLYING

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Phillips fuels your flight at Tradewind Airport

AMARILLO TEXAS

Tradewind. the first Approved Repair Station in West Texas, accommodates 40 airplanes and provides a hangar for Amarillo Aircraft.

Mr. Shelby M. Kritser has been an airplane enthusiast since his boyhood days (not so long past!) He is now the young energetic president of the up-and-coming, new Tradewind Airport.

A Phillips 66 tank truck with a capacity of 800 gallons, refuels a private plane at the Tradewind Airport.

THE AIR-MINDED CITY of Amarillo boasts a new air field, called the Tradewind, built and operated solely for the use of private planes. Located just southeast of the city limits, this modern air field is the first in the country to use runways sodded with Bermuda grass and kept in the pink of condition by underground, high pressure irrigation!

Just as a man is known by the company he keeps, so you can judge the quality of Phillips 66 Aviation Gasoline by those who use it. At the Amarillo Municipal Airport where the big sky-liners refuel . . . as well as at the smart, modern Tradewind Airport, you'll see the familiar winged shield of Phillips 66 Aviation Gasoline. Phillips aviation products and Phillips service are well-known throughout aviation circles . . . from the Dakotas to the Rio Grande!

Yes, you can depend on Phillips 66 Aviation Gasoline! Phillips is one of the largest suppliers of high-octane fuels for the Armed Forces. If you need help with your aviation fuel problems please write to the Aviation Department, Phillips Petroleum Company, Bartlesville, Oklahoma.

Phillips 66

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6 feet long, 18 inches wide. Post paid **$3.00.**

LEATHER NAME PATCHES

YOUR CLUB OR AIRPORT
YOUR NAME
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These name patches are genuine leather imprinted with 22k gold letters and numbers (heated into the leather). Complete patch **$1.00** each; **3** for **$2.00** Post paid. No C.O.D.'s.

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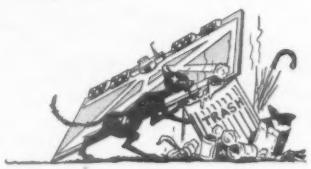
THE MAIL BOX

PAOLI-MALVERN CASE

We were glad you found our case sufficiently important to warrant the article "The Case of the Unwanted Airport" (February issue).

Two [offers of] testimonial help came in but it was too late for that.

In writing his final opinion the judge has granted the injunction. We have now



filed an appeal to that decision. What the result will be is a matter of speculation.

My own reaction is that the article was not read by the right people—that is, it was read by people already interested in aviation. In a newspaper interview when we were first subpoenaed I told reporters that "the action was undoubtedly due to their unfamiliarity with flying."

I find this to be true more and more. We must find some way to educate more people to the advantages and safety of flying.

M. R. KRADER
Paoli-Malvern Airpark Corp.
Malvern, Pa.

HOW TO SELL AIRPLANES

I really enjoyed Harry A. Berk's article "Sell Them Like Autos" (August issue). He expressed my sentiments exactly and showed why small lightplanes are now collecting dust in hangars.

I have tried to make dealers, distributors and salesmen see the point but their idea is "if they want one they'll buy it." I'm a pilot myself and a future plane owner so I was glad to see my ideas so aptly explained in the article. Let's have more like it.

ROBERT W. DAY, JR.
Oliphant, Pa.

We are not going to have much of an aviation industry until we can develop

salesmen who can sell air transportation to a million traveling men who need it. In the early days, the automobile companies thought that race drivers would make the best automobile salesmen. They got nowhere and we would not have had much of an automobile industry if real salesmen had not been developed: It is about time someone started in aviation.

E. L. STEPHENSON
Middle West Manager,
Associated Aviation Underwriters
Chicago, Ill.

I am in a wheel chair and have been trying for only a short time to do enough in sales or advertising to pay for lessons in a conventional airplane. I find that I am depressed before I start out from hearing all other "would-be" salesmen tell me it can't be done. The average dealer won't even try what is known as sound advertising, least of all sensational advertising, to draw the public's attention.

I know light airplanes have a very definite place in business life. I know they will sell if they are sold by a good "go-after-them" salesman, and good local advertising. If any company doubts this, let them contact me.

Congratulations to Mr. Berk on a fine eye-opening article.

GERALDINE K. WILSON
Los Angeles, Calif.

PALM SPRINGS BREAKFAST FLIGHT

Your article "Flight to Breakfast" (July issue) is incorrect in some spots, and others need amplification.

Palm Springs Airport has two runways of 6,700 and 6,900 feet. The CAA traffic control operators there are the best. With 1,100 aircraft landing at speeds varying

form 60 to 200 m.p.h. in three hours with only three ground loops, it would seem traffic control did a good job. It was congested but how could it be otherwise? If departure times from airports sending aircraft on such a flight were staggered it might improve the situation.

You speak of Santa Barbara or Ensenada being more suitable. There are clear approaches to all runways at Palm Springs and no obstructions. At Santa Barbara landing west the approaches are over congested areas and low hills, landing east, approaches are over the ocean. Ensenada is in Mexico so there would be the customs problem.

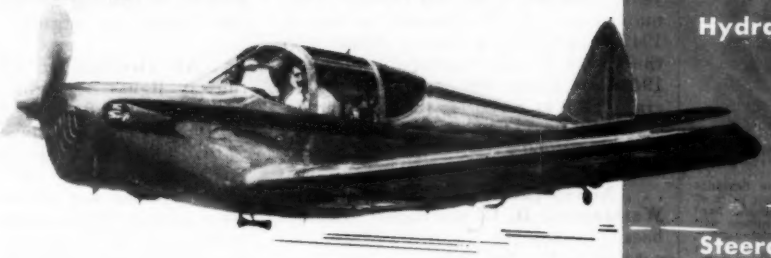
Regarding the food problem—there are no local caterers. The Palm Springs Airport Corp. did the catering. The day before the flight the Junior Chamber of Commerce had reservations for only 250.

(*Continued on page* 100)

FLY AN ALL-METAL SWIFT

Swift

Big-plane features



- All-Metal Construction
- Retractable Landing Gear
- 125 H.P. Continental Engine
- Low-Wing Design
- Aeromatic Propeller (Deluxe Models)
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- Hydraulic Flaps
- Metal Top Canopy (Deluxe Models)
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$3,250 Standard
$3,750 DeLuxe
F.A.F. DALLAS

The Swift is the only all-metal, low-wing, cross-country airplane that sells for less than $6,000 ... the only moderately priced airplane made for the kind of flying that pays its own way in utility and time saved. Flying costs are low. Maintenance is economical because of the all-metal construction with many easily replaceable sections. Take the wheel of a Swift at your Dealer's and see for yourself what a ***pleasure*** Swift flying can be ... visualize the utility of a fast, long-range Swift in your own business and pleasure travels. ***Immediate delivery on both Swift models.***

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Fort Worth
American Flyers
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Alamo Airline Services
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"The Swift is here to stay"

The Swift is now being made by Texas Engineering & Manufacturing Co. in the former North American Aviation plant near Dallas, where 330 Swift and 40% of the component parts for all Swifts were produced for the former Swift manufacturer. TEMCO, certified by the CAA and manned by former executives and employees of North American Aviation, has the financial strength, the manufacturing experience and the aviation "know how" to guarantee proven airworthy airplanes and dependable parts and service.

Visit your nearest Swift Dealer

These Swift Dealers are at your service. Others are being appointed so that Swift Sales and Service will soon be within easy flying distance of almost everywhere.

TEXAS ENGINEERING & MANUFACTURING CO., INC.

BOX 6191F DALLAS, TEXAS

WAR SURPLUS BARGAINS

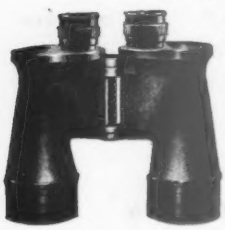
NEVER HAS THERE BEEN SUCH A SENSATIONAL BARGAIN AS THIS!
BUBBLE SEXTANT—TYPE A-10

Used by the Army Air Forces, these Bubble Sextants cost the Govt. about $200 each to make. At our price of $12.50, you can quickly see that this is a wonderful bargain. Included with your Bubble Sextant shipment will be a sturdy wooden Carrying Case, equipped with catches and handle, 5 spare waxed paper discs, flashlight with rheostat for using Sextant at night. (Uses ordinary flashlight cells which are not furnished.) Auxiliary 2 Power Galilean Telescope for use on faint stars, Allen wrench, 1 spare marking point. Though wartime used, these Sextants have been, where necessary, completely repaired, collimated, and put in good working order. The light bulb has been tested. The Bubble is in working condition. All other working parts have been checked and are in good order. Because these Sextants have been wartime used, we make the following guarantee: if you are not satisfied that our Sextant is exactly as we represent it, return it within 10 days and your money will be refunded. Full directions on how to use the Bubble Sextant will accompany your shipment.

Stock #924-D.....$12.50 Postpaid

ASSEMBLE YOUR OWN BINOCULARS!

Complete Optics! Complete Metal Parts!
Save More Than ½ Regular Cost



GOVT'S 7 x 50 BINOCULARS. Here's an unusual opportunity to secure a fine set of Binoculars at a substantial saving of money. Offered here are complete sets of Optics and Metal Parts for the Govt's M-16 7 x 50 Binoculars. These components are new and all ready for assembly. We supply full instructions. Limit—1 set of Metal Parts and 1 set of Optics to a customer.

METAL PARTS—Set includes all Metal Parts—completely finished—for assembly of 7 x 50 Binoculars. No machining required. Bodies have been factory hinged and covered. A sturdy Binocular Carrying Case is optional with each set of Metal Parts.
Stock #842-D....$39.40 Postpaid, plus $4.80 for Case. **Total $44.20**

OPTICS—Set includes all Lenses and Prisms you need for assembling 7 x 50 Binoculars. These Optics are in excellent condition—perfect or near perfect—and have new low reflection coating.
Stock #5102-D.....7 x 50 Optics.....$25.00 Postpaid

NOTICE! Add 20% Federal Excise Tax to above prices if you order **both** Binocular Optics and Metal Parts.

CONDENSING LENSES—6½" dia., 9" F.L. Seconds, but suitable for Enlargers and Spotlights.
Stock #1061-D .....$2.50 Postpaid

We Have a Limited Quantity of Condensing Lenses—seconds—ranging from 4½" to 8½" in dia. with various focal lengths. Send for Free Bulletin titled **"MISCELLANEOUS CONDENSING LENSES—D".**

AIR FORCES GUN SIGHT—With Polarizing Variable Density Attachment. (Polarizing attachment alone is worth many times the price of entire unit.)
Stock #906-D.....$5.00 Postpaid
Same Unit Without Polarizing Attachment
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BOMBER SIGHTING STATION—A double end Periscope Type Instrument of highest precision. 6 ft. tall, shipping wt. 360 lbs. Orig. cost $9,850. Consists of numerous Parts and Electrical Gadgets.
Stock #914-D.....$50.00 F.O.B. Oklahoma

WE HAVE LITERALLY MILLIONS OF WAR SURPLUS LENSES AND PRISMS FOR SALE AT BARGAIN PRICES. WRITE FOR CATALOG "D"—SENT FREE!

Order by Stock No. • Satisfaction Guaranteed

EDMUND SALVAGE CO.

P. O. AUDUBON, NEW JERSEY

JOTTINGS

. . . Aircraft registrations in the United States almost doubled during the past year, according to a CAA report. Total number of aircraft reported on June 1, 1947, was 92,348, a gain of 39,449 over the 52,899 planes registered on June 1, 1946. Of these, 888 are scheduled aircraft. As to airports—the number increased from 4,268 to 5,074, a gain of more than 800.

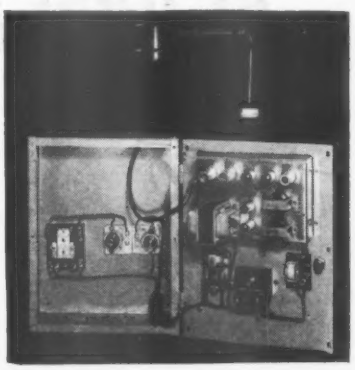
. . . Newspapermen learning to fly in Washington, D. C. are called Bumblebees. Reason for the name is that according to aerodynamics, the bumblebee is unable to fly, but ignorant of these scientific facts it flies anyway. The Bumblebees now have their first plane, a Piper PA-11, loaned by the company. Others will be added to the fleet as needed. There are no dues but a member pays $2 for a pin when he solos. The club's officers are "self-appointed, self-satisfied, self-perpetuated and will meet once a year with due ceremony at the expense of the organization to re-elect themselves."

. . . Air Express has just celebrated its twentieth anniversary. The first nationwide shipping service, established by four airlines and American Express Company, extended from Boston and New York to San Francisco and Dallas. Today, domestic service is operated over a 70,000-mile network of 25 certificated airlines with routes extending to the four corners of the U. S. and Canada. International air express extends to the principal cities on six continents. And rates are lower. A five-pound package air-expressed from Boston to San Francisco in 1927 cost $15 and flying time was 33 hours; today the charge is $3.68 with flying time under 11 hours.

. . . A special family allowance policy has been established at Aeroquip Corporation for employees with a base salary of less than $300 per month. The plan provides: (1) Allowance for wife or fully dependent husband, $10 per month, or $120 annually; (2) for each dependent child under 18 years of age, $5 per month, or $60 annually; and (3) maximum allowance, $25 per month, or $300 annually. With this policy the company hopes to encourage employees to gain experience in lower levels in order to be better equipped for promotions.

. . . Qualified students may now take the helicopter mechanics' training course at Bell Aircraft Corp. Previously the course was limited to company and customer personnel and lasted two weeks. Now the course will last from two to five weeks, with new students admitted approximately every two weeks. Only mechanics holding an airplane and engine license are eligible.

. . . An electric ear which turns on runway lights at night when a plane approaches the field has been developed by Pacific Signal Company, Lynwood, Calif. Like a radio transmitter, the Pasico Electric Ear (see photo below) receives sound and converts it into electrical energy which actuates relays. Adjustable, it can be set to detect a plane three miles away or, if airlines regularly go over the field, it can be set to actuate

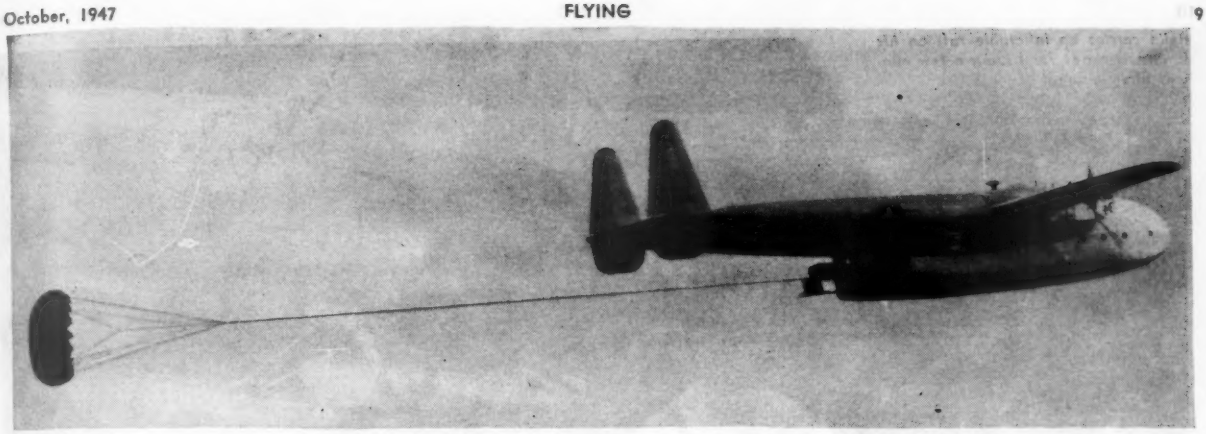


Electric ear flicks on runway lights when planes approach airport at night.

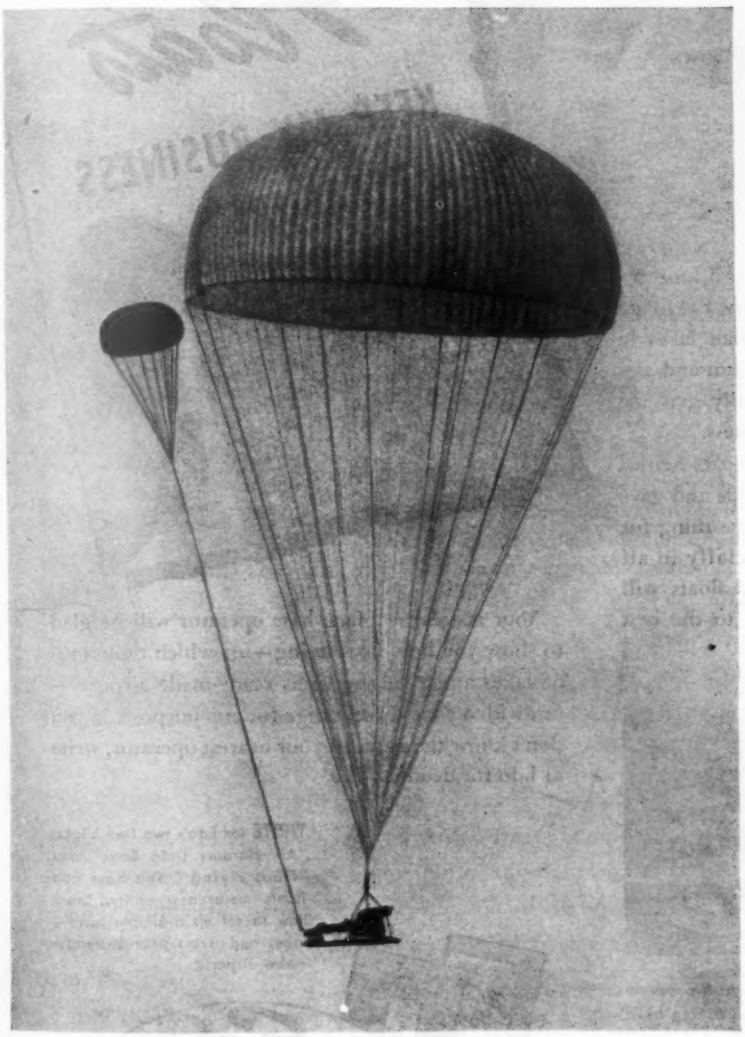
the control only when a plane buzzes the field. A time delay holds lights on for several minutes in case of dead stick landing or glide approach. Price of the instrument is $187.50.

. . . Duckbill platypuses bound for the Bronx Zoo were passengers recently aboard an Australian National Airways plane. Pointing the way to future zoo shipments, a supply of platypus food was flown along too. It was that old favorite, frozen yabbies.

. . . Over 500 Shooting Stars are being modified at Lockheed Aircraft Corp. under a recent AAF contract. Due to the rapid advancement of jet airplane development, these modifications are necessary. Some of the additions include water-alcohol fuel injection for greater speed; provision for jet-assisted take-off; modification of wing tips; attachment of rocket launchers; and provision for cockpit cooling and canopy defrosting. Five of the modified planes will be produced daily by the end of November and the entire job is expected to be completed by spring. END



THERE'S BEEN A BIG DROP IN HOWITZERS



No telling what the Army Air Forces will do next with the Packet.

They've transported Airborne Troops and Air Transportable Infantry. They've towed gliders, carried weapons and cargo on maneuvers that are setting the pattern for the swift mobility of our peacetime army.

The Packet has carried jeeps, trucks, even helicopters.

Now, through the ingenious application of ribbon parachutes, a Packet can deliver a 75 mm. howitzer — by air — ready for action to forces deployed on the ground. Engineers of the Air Materiel Command rig a small "extractor" 'chute and a 90-foot ribbon 'chute to the gun. The little one pulls the cargo load backward through the big rear doors of the Packet. Once in the clear, the big 'chute blossoms and the load of more than a ton floats safely to earth.

This method, the AAF has announced, makes possible air-delivery of cargo limited only by the size of the Packet's large rear doors.

The spectacular abilities of the Packet have made it a highly efficient tool in the hands of cooperating Air Forces and Ground Forces.

They are abilities conceived by Fairchild engineers — abilities that stem from a quarter century of aviation experience that creates "the touch of tomorrow in the planes of today."

Fairchild Aircraft

Division of Fairchild Engine & Airplane Corporation, Hagerstown, Maryland

Helin carries an inflatable raft on his flights, is ready for fishing a few minutes after landing.

"Floats KEEP MY BUSINESS A PLEASURE"

Says Charles Helin, Detroit sportsman and fishing lure manufacturer

"Long before my hobby of making fish lures became a business, I was sold on floats. Now I'm flying my fourth floatplane. I get to Canadian lakes in hours instead of days, both to fish for fun and test new lures. And my Piper Cruiser really gets me around the country in a hurry on business."

Helin sold 800,000 lures last year. Floats helped him get these sales, saved him travel time and gave him a lot of fun. Floats can do the same thing for other salesmen and executives, especially in all marine and sporting goods lines. And floats will give all sportsmen Helin's fast access to the best fishing and hunting grounds.

Airport for Helin's seaplane adjoins his front lawn. His daughters enjoy float flying, too, when he isn't away on fishing trips.

Your nearest seaplane base operator will be glad to show you how float flying—for which thousands of lakes and rivers serve as ready-made airports—can widen your travel range for any purpose. If you don't know the name of your nearest operator, write to Edo for details.

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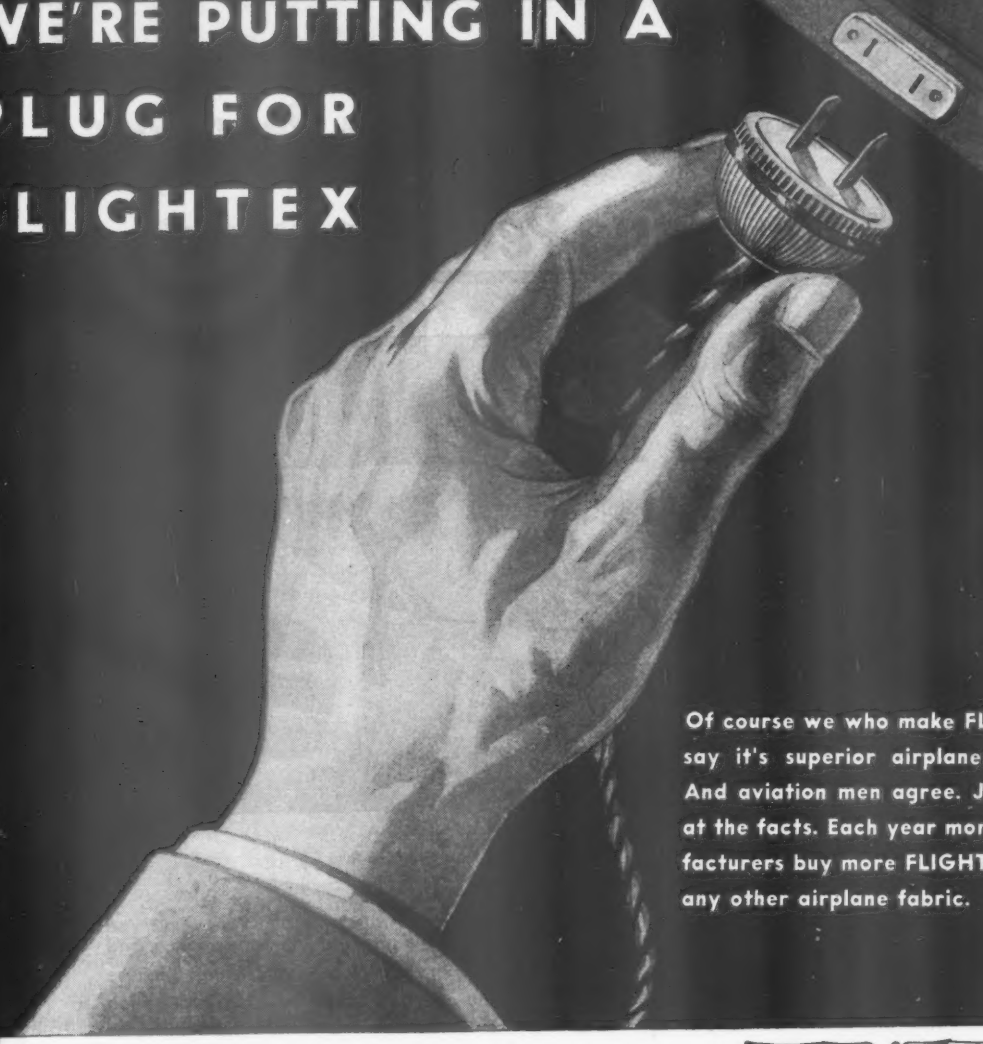

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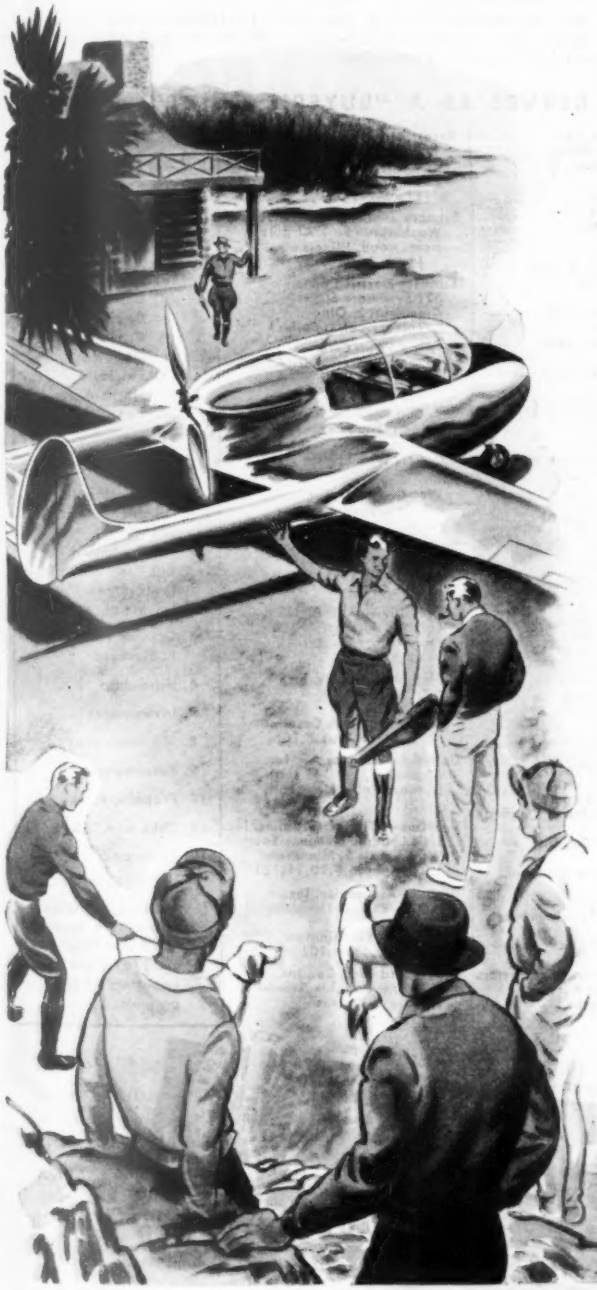

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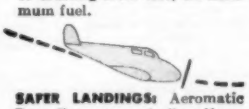

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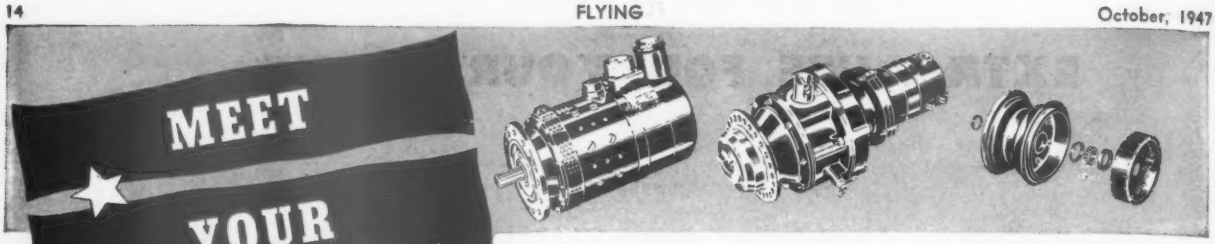

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FLYING
OCTOBER
1947

Alaska: KEY TO OUR AIR DEFENSE

By HENRY H. ARNOLD, *General of the Army, U. S. A. (Ret.)*

WE ARE as vulnerable to modern warfare today as we were on December 7, 1941.

It is quite possible that we are even more vulnerable than we realize. The development of guided missiles and rockets in other countries may well have progressed farther than we think.

Any surprise attack on the United States is going to be known to us in advance only in this respect: it will come by air, and it will come via the Arctic Circle.

Alaska is ours, to arm as we please. We *could* make it the next thing to one solid air base, if we wanted to. We *could* set up the world's most colossal air defenses there right now starting tomorrow morning. We *could* set up a complete warning network of radar stations, along with rocket-interception bases. In view of the fact that we already know that our greatest danger lies over the Arctic, and knowing what must be done to defend ourselves from this threat, why aren't we doing it?

To outward appearances, Alaska's tremendous importance in the air world is known to almost every thinking group of people except, perhaps, a few in Washington. Our pioneering "bush" pilots, who have practically settled Alaska with the help of their airplanes by doing the impossible, have known it for years. Regular airline service now is running between the United States and the Orient via Alaska. It's common knowledge that the shortest air routes from the United States to every major country on earth are over the North Pole. To strike at us, any potential enemy must head north. William Henry Seward must have been well aware of that in the days he helped the United States acquire Alaska, which he was then calling our first line of defense.

Continued on the following page

Surely every other country in the world has studied its air maps enough to know that the Arctic and the North Pole are no longer the ends of the earth. Surely they can see that North America, Europe and Asia all are grouped around a small central ocean, the Arctic.

But what is the United States doing to protect itself? Look at the record:

Our present Army Air Forces all together could hardly defend the northeast Atlantic coast. First-line combat planes of the Army and Navy together total just 2,900 today. Russia is supposed to have 14,000.

Even as I write this, demolition organizations are smashing up thousands of serviceable military aircraft—serviceable, yes, but far from being first-line aircraft in the atomic air world of today.

Our present puny air forces are so hard up they have been forced to restrict the use of gasoline for routine flights. Army and Navy aviation men are told we "can't afford" to operate our small number of planes as much as we would like—this at the same time we are sending billions of dollars to foreign countries all over the world. Meanwhile, Russia's combat air force today is reported to be larger than the American and British air forces combined.

Appropriations for sorely-needed aeronautical research have been—and still are—dangerously small. Research in guided missiles, atomic energy and jet propulsion should not only have top priority but unlimited funds.

We must decide what we think our minimum safe aviation manufacturing industry should be, then spend all the money necessary to keep that industry alive and healthy.

Speed is vitally important. I need only to point out that the B-29—which we were not able to put into combat until the latter part of the war—was conceived, and development was started, in 1935. Remember, too, that after VE Day our experts in Germany found we were some 10 years behind in certain fields of aeronautical research.

Fundamentally, this serious problem is for the American people to solve—and now. It is up to the average American to study the air-world maps enough to know that no place on the face of the earth is beyond the range of even present-day aircraft. Every American must realize that the widest oceans, highest mountains, most desolate wildernesses, are nothing more than so many flying hours to the modern airplane. And if that's true with present-day aircraft, it takes little imagination to see the folly of thinking ourselves somehow immune from rocket attacks.

The United States must face this situation, and right now. There's no place to run and hide any more. There never will be again.

H. H. Arnold

Aviation's Vagabonds

Money isn't important to Piper's ferry pilots who transport planes because they "just like to fly."

Vagabonds sign up to deliver planes (above). Pilots (l. to r.) Hugh Spears, William Young, Shirley Arnold and Jinks Harris receive last-minute instructions from Supervisor Ed Jahelka. Below three *Super Cruisers* leave Lock Haven, Pa.

Aviation's Vagabonds

Continued

Ferry pilots hitch-hike, walk, or take taxis from town to the airport. Women vagabonds Shirley Arnold, Ardmore, Pa., and Virginia Shur, Henderson, Tex., hail two newcomers at Piper field.

LESS than 200 private pilots have inspired an idea that may revolutionize one aspect of lightplane flying.

The pilots are the "vagabonds" who since the war have ferried over 3,000 airplanes from Piper Aircraft Corporation plants at Lock Haven, Pa., and Ponca City, Okla., to all parts of continental United States, Panama, and Alaska. They have covered more than 1,900,000 air miles, according to Edmund J. Jahelka, Piper *Cub Flyers* Club supervisor at Lock Haven, who is in charge of their activities.

So successful has been the work of the vagabonds that William T. Piper, himself a confirmed ferry pilot, has decided to name a plane after them. He plans to produce the *Vagabond,* which may make aviation history before the year is out. The Piper president thinks that plane deliveries have proved the feasibility of the fly-it-yourself idea, both from the standpoint of safety and public interest. The new *Vagabond* will be built for the rent-a-plane trade. Before long you should be able to go into designated airports throughout the U. S. and rent a Piper *Vagabond* to most anywhere.

Ed Jahelka, who estimates that 150 pilots are now vagabonding for Piper, says that long-distance air deliveries are not usually favored by Piper economists. It's cheaper to ship the long hauls by rail. Of some 7,000 planes built by Piper in 1946, about 1,500 were delivered by vagabonds.

Catching that last nap in the Piper clubhouse before take-off are (l. to r.) Ed Harkin, Hugh Spears, William Young and John Coppage.

Quick shave is easy for Hugh Spears at the Piper clubhouse as cooperative Shirley Arnold holds mirror for him (below).

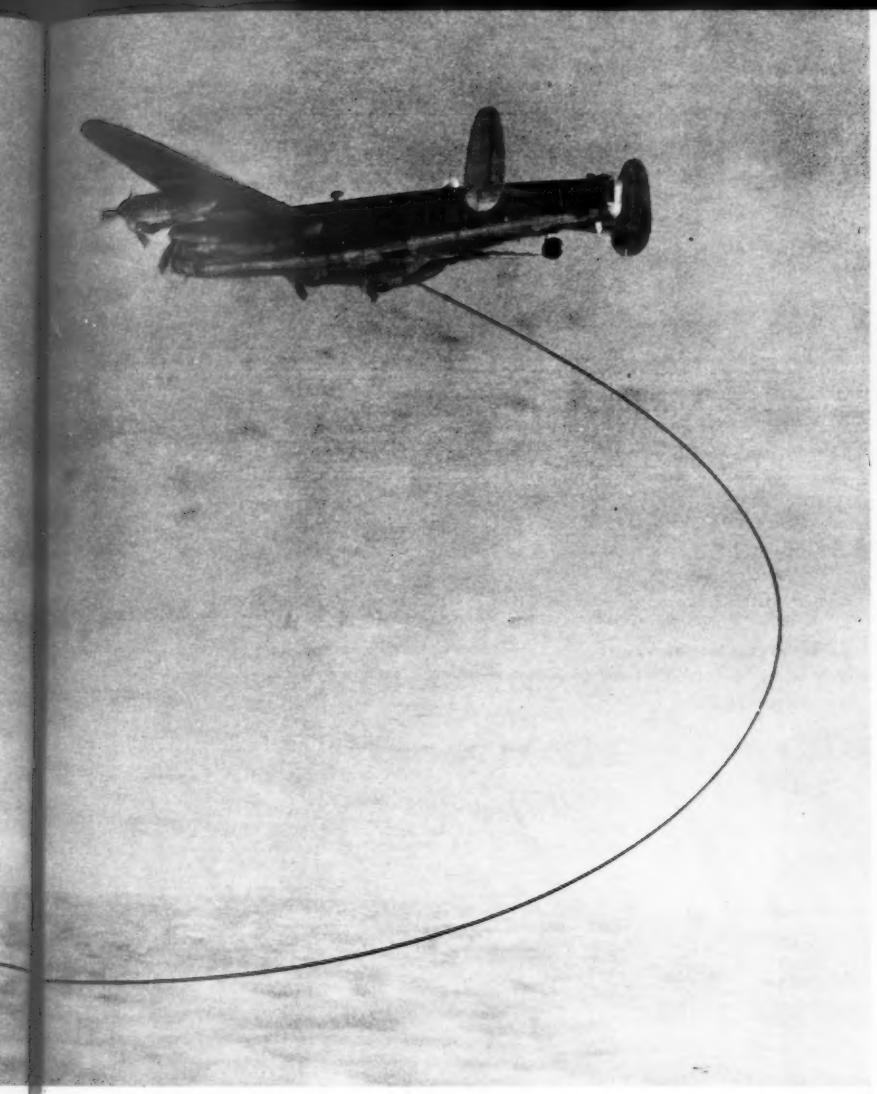
Most of the vagabonds live in Pennsylvania, New York, and Ohio. Jahelka prefers seasoned pilots with more than 200 hours and says that the best vagabonds are ex-GIs and youngsters with enough spare time and enterprise to do the job right. And the kids are given the breaks. They have the *Cub Flyers* clubroom at the field, and efforts are made to save them hotel expense by assigning planes as soon as possible after pilots arrive. These vagabonds know the tricks. When they are delayed at the field they find the cheapest hotel and rooming houses in Lock Haven. Some disregard rules and sleep in the Piper lounge, others take naps in the local railroad station. In summer they have been seen sleeping in (*Continued on page* 91)

Taxiing for take-off are three *Super Cruisers* (below). Women pilots Shirley Arnold and Virginia Shur ferry planes at left.

Flying Gas Stations

Fuel transfer can be done at any altitude from 200 to 20,000 feet. In smooth air planes fly 200 feet apart, with tanker doing necessary maneuvering. Whole system has numerous safety devices built in.

Lancaster tanker has two 600-gallon tanks in its bomb bay. Tanker pumps 100 gallons a minute into receiver.



This is how it might be possible to fly 'round the world in a single hop.

MID-AIR refuelling used to be an endurance-flight stunt years ago. Today it is a business—in England, at least. Over there, the name of the business is Flight Refuelling, Ltd. It is the brainchild of Sir Alan Cobham, famed British airman, who admits he got the original idea from American endurance flights.

Refuelling in the air now is a science, as the photographs on these pages show. Flight Refuelling, Ltd., has worked out a permanent aerial refuelling system that has been in operation for some time. The standard intake unit weighs 300 pounds and can be installed in any airliner.

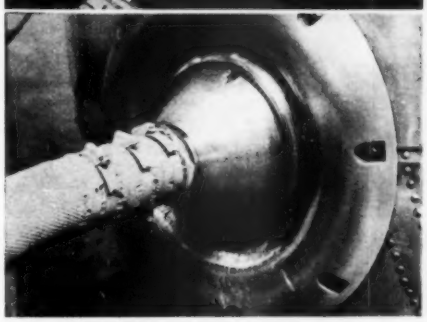
Two converted *Lancaster* bombers of Flight Refuelling, Ltd., are shown on this page. The tanker is, of course, the more complex. It has two 600-gallon fuel tanks in the bomb bay. These are connected to the main hose drum unit which carries the 250 feet of hose.

Contact between the two planes is made when the tanker maneuvers to a point below and behind the receiver. The receiver operator trails a line, at which the tanker fires a harpoon-like affair with a line of its own. The two lines lock on contact. The receiver then reels in the tanker's line, to which is attached the hose. Once the hose is attached, the fuel flows down at high speed. END

INGENIOUS DEVICE MAKES REFUELLING POSSIBLE

Trailing lines of tanker (horizontal) and receiver engage hooks, then pull out gas hose.

Tanker windlass holds 250 feet of hose, which transfers fuel while flying 200 m.p.h.



Receiver coupling in tail of plane locks hose nozzle firmly in place. Cable pulls nozzle into place (top) where it locks (bottom).

Taylorcraft taxis to avoid cattle which roam the unfenced range near Jackson Airport. When planes landed, some of them had to wait for animals to be herded off runway.

Flying savvy helped Bob Gloe and Dave Quinney (total weight 420 lbs.) top ridges.

G.I. Air Tour

Teton Mountains form backdrop for Price Millward's hangars at Jackson. Parking area fences out fabric-eating range cattle.

Only Cub on tour was slow but outperformed all others in take-off performance from high airfields and in altitude reached (14,000 feet).

Neon sign of Cowboy Bar in Jackson was unusual sight to pilots from dry Utah. Sheriff Olin Emory (center) welcomes the visitors.

Mass flight helps GI students learn tricks of mountain flying.

By
ROBERT ARENTZ

STUDENT pilots in mountain states get mighty tired of "valley" flying and repeating the same old traffic pattern as their main activity. Thompson Flying Service of Salt Lake City, Utah, decided that it could combine fun and instruction for the long-range mountain dual their students needed. Chief Pilot Harry Fromm and Manager Carl Hellberg chose Jackson Hole, Wyo., as the destination of the first of a series of mountain flights for their G.I. commercial course students.

To reach isolated Jackson Hole, which adjoins Yellowstone Park on the south, the dual students had to fly the full length of the 10,000-foot Wasatch mountains, parallel several other mountain ranges and valleys, and cross one ridge 10,500 feet high.

They left Salt Lake City in May temperatures of 80°, wearing light shirts and no coats, and landed in a semi-sleet storm at the 6,500-foot Jackson field. Thompson Flying Service invited other Utah operators to join the flight, and hotel and cabin camp operators in the valley agreed to make the pilots a flat charge of $3.50 each—reasonable enough considering that summertime minimums are $10 and up.

Forty-five planes made the flight but bad weather in middle and southern Utah threw them into two sections a week apart. During the completed flights the weather ranged from pretty good to pretty bad—which was just what the instructors had hoped for. The students learned how to navigate mountain ranges, how to dodge unhealthy storm fronts, and how to fly through rain and sleet. They learned when to break high to top a ridge and when to take it the easy way through a saddle. When the flight was over, most of the students realized there was a bit more to mountain flying than they had imagined.

Bar-flying in a Jackson tavern. Instructor Vernon Penrose gives flying tips to pilots Douglas Kemp and Paul and Marie Frampton.

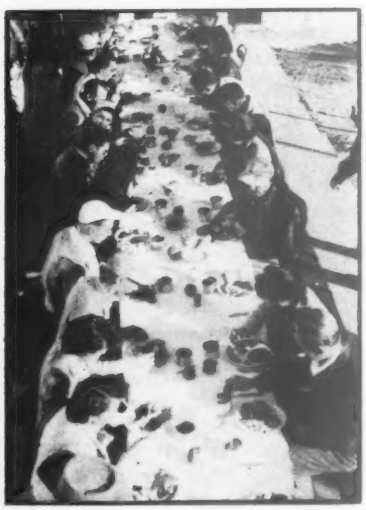
Planes on the flight included Taylorcrafts, Cessnas, *Ercoupes,* Stinson *Voyager 150s,* an Interstate, a *Cub,* a *Bonanza,* and several BT-13s. No plane had any difficulties or forced landings.

Entertainment included a flight over Yellowstone, with a landing at West Yellowstone, nearly 7,000 feet above sea level. In Jackson, many of the visitors had their first experience with a "wide open town," with slot machines, roulette, craps and liquor. There were pretty little dudettes to dance with to the sway of cow-town music. All told, everyone had so much fun, and gained so much (flying) experience that other trips are already being flown. END

Borrego Air Ranch has a main house, guest house and other buildings, and an 1,800-foot runway on 160 acres of California desert.

Ranchaero

They had no place to fly, so four city families bought a ranch.



Hospitality and good food made ranch a San Diego flyers' haven.

By HAROLD KEEN

Aviation Editor, San Diego Tribune-Sun

THERE'S a new kind of "dude ranch" out west.

There are no horses or corrals. Not a cowboy is in sight. Instead, squatting like monster beetles on the desert floor may be a dozen planes near a cluster of whitewashed buildings looking like a frontier outpost.

This is a city folks' hideaway carved out of a vast barren Southern California valley. Set down in the great Borrego desert just east of the coastal range of Laguna Mountains it is the "Borrego Air Ranch," a Shangri-La of peace and quiet. It's an ideal example of the refuge to which people yearning for escape from metropolitan madness—if only for a weekend —may fly in the Air Age.

A year or so ago, Drs. John and Vernon Steen, dentist brothers, and Ed and Stephen Fletcher, realtor brothers, found themselves united in two common interests—flying and the desire to own a desert ranch. Pooling their resources, they purchased a ranch and 160 acres of land from an Army doctor. On it are a stoutly-constructed main house and guest house,

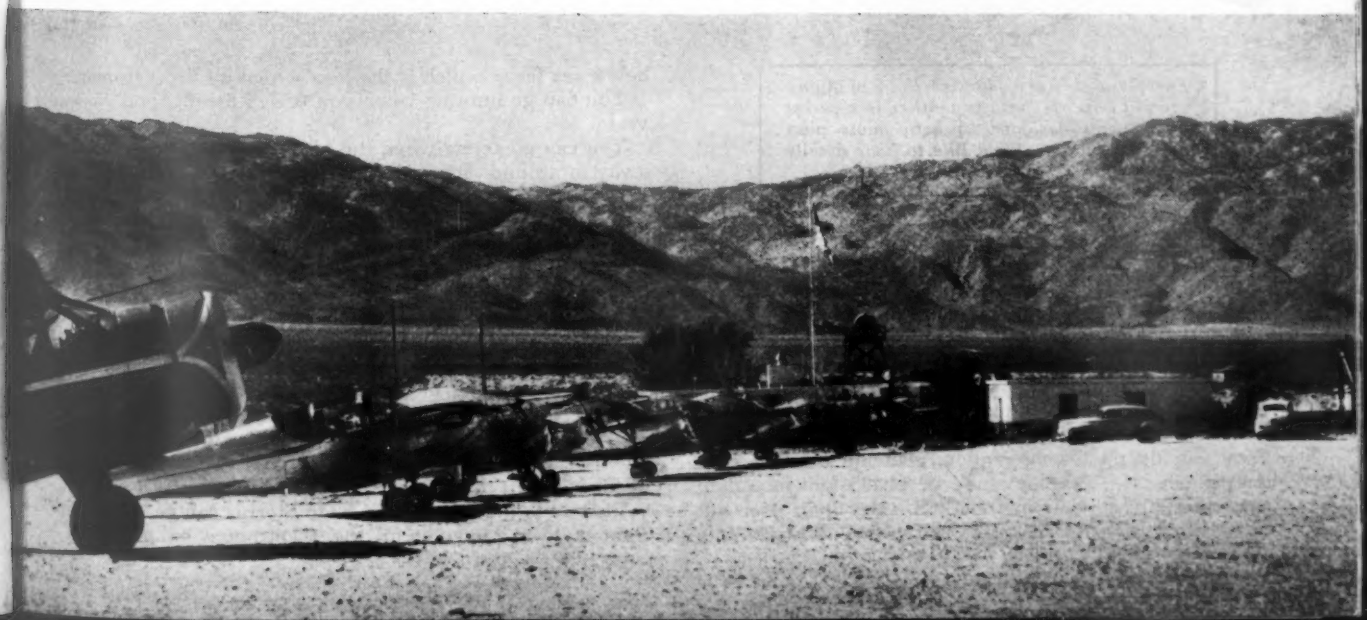
Borrego Ranch owners include (l. to r.) Dr. and Mrs. Vernon Steen, Ed Fletcher, Mrs. John Steen, Ed Fletcher III and Dr. John Steen. Mr. and Mrs. Stephen Fletcher and Mrs. Ed Fletcher are not in picture.

capable of accommodating as many as a dozen persons comfortably overnight; service buildings, a generating plant, wells and a water tower. There's a quaint, circular fish pond, and a family orchard growing dates, grapes, oranges, olives and grapefruit.

"We bought a GI cargo truck and began building our runway," recalls Ed Fletcher. "Dragging an eye-beam behind the truck, we cleared away the cactus and sagebrush for 1,900 feet in our 'front yard,' and there we had the makings of a good runway on the gently sloping desert floor." Later a grader was brought in to level the airstrip and surface it with decomposed granite. In the near future, the partners plan to extend the runway another 700 feet to take care of larger planes.

When the ranch was acquired the partners began flying in earnest. Between them, they have a "fleet" of three planes, two Stinson *Voyagers* and an Aeronca *Champion*. Altogether, there are seven flying Steens and Fletchers—including Mrs. John Steen, Mrs. Vernon Steen, and Ed Fletcher's two sons, Ed III, who (*Continued on page* 97)

Typical weekend traffic crowds field with planes from all over San Diego County. Runway can accommodate five-passenger Howard (left).



Vacationers arrive in Ercoupe at Bishop Airport in the heart of California's High Sierra country. The all-year field has a 7,500-foot runway.

Inyo and Mono Counties, Cal.

A FLYING Holiday

By GAITHER LITTRELL

Western Editor of FLYING

For plane owners who are tired of flying around airports, here is another in a series of features designed to help pilots plan aerial vacations. We'd like to hear details about your FLYING Holiday.—Ed.

FOR those private pilots wishing contrast during their FLYING Holiday, here's one of the best tips yet.

Fly out to Inyo-Mono counties in California, an area beginning about 150 air miles north of Los Angeles, extending approximately another 150 miles northward, and running in a rough parallel line about 40 miles west of the NW-SE California-Nevada border.

Here you will have summer in winter, and winter in summer.

You can fly up Owens Valley, glancing over the left wing to view Mt. Whitney, majestic 14,495-foot mountain peak, the highest point in the U. S.—and then peer out the right side to see Bad Water in Death Valley, 280 feet below sea level, which is the lowest spot on the continent.

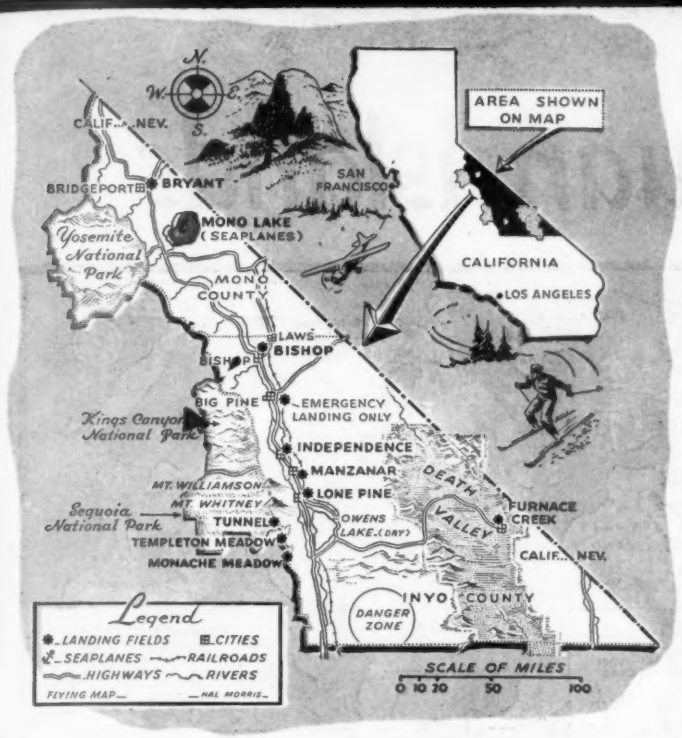
You can go hunting when you tire of fishing, and vice-versa.

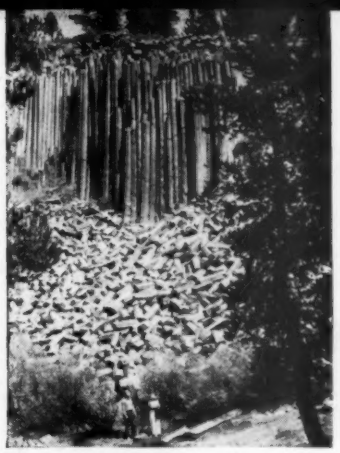
You can go skiing when the temperature 20 to 25 miles away is around 80°, and then return to go swimming in cool water.

And then you can leave that modern contraption—your plane—tied down at the airport and go back into the west's old romantic past, visiting ghost mining towns, and an Indian village in Death Valley which the old prospectors named "The Sink," and from which borax was brought out by 20-mule teams.

This is all yours in your 100-m.p.h. plane, which can be landed at many modern—some ex-military—airfields in the Owens Valley. From these airports the flying vacationers are only a few miles from modern hotels, resorts, motels, camping areas, etc. In many districts jeeps may be hired by the day. Other surface transportation is ample.

Visitors to the heart of the High Sierras can go in luxuriant style or rough it all the (*Continued on page* 76)





Devil Post Pile is weird rock form.

Visitors go boating in Lake George.

Inyo County Airport's 5,500-foot runway, five miles from Independence, can be used by flying tourists, although the field itself is not manned.

Sierras have good airports nearby.

Trout fishermen flock in to Bishop.

Pack train leaves Camp High Sierra for day's trek over mountain trails. The resort, near a group of lakes, is owned by the city of Los Angeles.

ANOTHER FLYING HOLIDAY ON NEXT PAGE ⟶

Vacationers arrive in Ercoupe at Bishop Airport in the heart of California's High Sierra country. The all-year field has a 7,500-foot runway.

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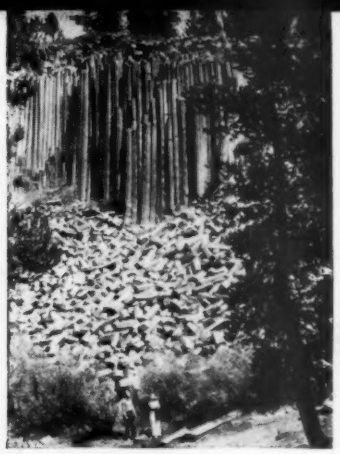

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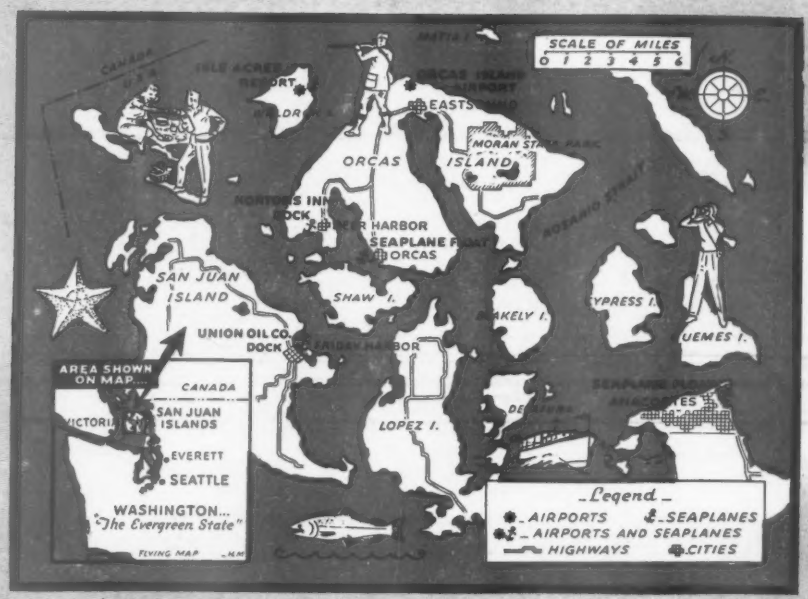
ANOTHER FLYING HOLIDAY ON NEXT PAGE ——▶

San Juan Islands

A FLYING Holiday



Flying picnickers Jerry Cole and Loretta Clarizo lunch on lonely Matia Island, just a short hop from Seattle, Wash.

By
KENNETH PENCHOS

Want an island for the day? You can fly to one in Puget Sound.

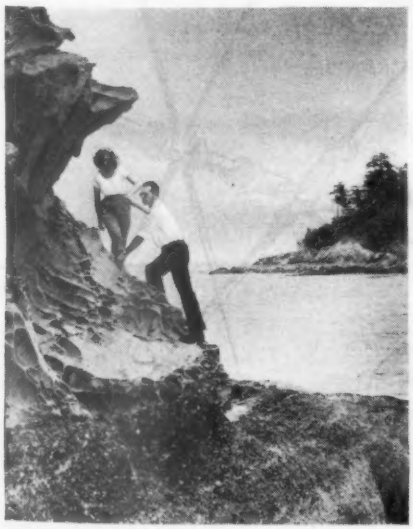
WHETHER you're looking for a comfortable resort or a little-known island you can call your own for a day—you'll find the answer to vacation problems with a small seaplane in the San Juan Islands.

An easy 50-minute flight from Seattle, Wash., by lightplane brings you to the San Juans, clustered like stepping stones between Vancouver Island and the coast of Washington. The more than 172 islands, 82 miles northwest of Seattle, are a confusion of waterways, baylets, islets, sandy havens, and straits. Thousands of miles of rugged shorelines contain a panorama of red-barked madrona, wooded slopes crested with cypress, and abrupt limestone and shale cliffs.

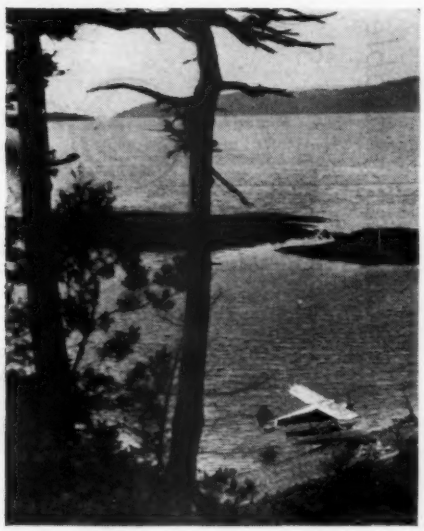
Two Seattle flying enthusiasts, Loretta Clarizo and Jerry Cole, recently took a one-day FLYING Holiday to tiny Matia Island in the San Juans. This uninhabited dot of land (a mile wide, two miles long) has three coves—and though all beaches are not sand, their Luscombe *Silvaire* suffered no damage to floats on the pebbly shore.

From Seattle, Loretta and Jerry flew a compass heading of 321° and were over water 70 per cent of the time. Their flight path paralleled Whidby Island, and continued right over several smaller islands. But at 2,000 feet they were never out of gliding distance (*Continued on page* 68)

San Juan Islands from the air look like stepping stones between the U.S. and Canada. Rich in historical lore, they are only 82 miles from Seattle.



Fantastic rocks, carved by wind and wave, are explored by Jerry and Loretta on Matia.



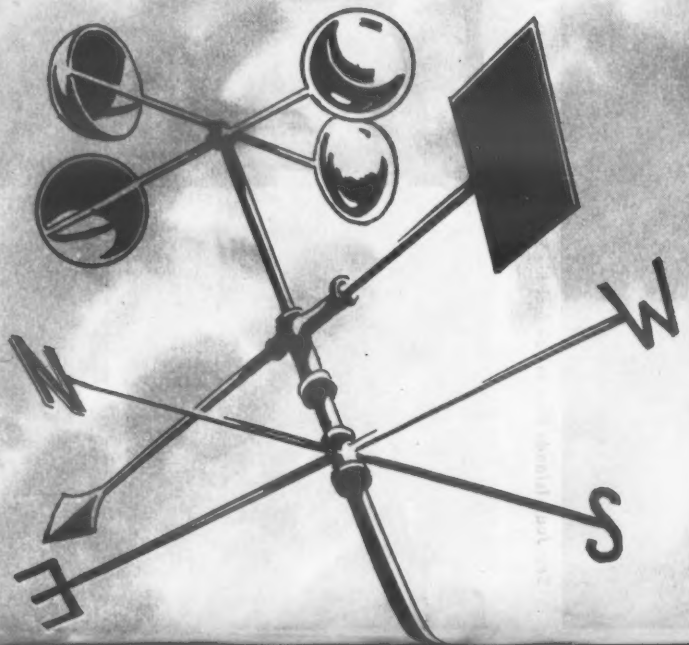
Island vista rewards flyers after they beach their Silvaire on tiny Matia's rugged shores.

Deserted house on uninhabited Matia adds "mystery" to the visitors' excursion.

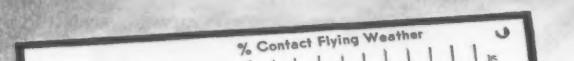
Your Home-Town Weather

Government experts have been tabulating flyable weather all over the U. S. for years.

NOTHING is quite so important to the private pilot as the weather. It is his first and foremost concern whenever he flies. Few pilots ever fly cross-country without first consulting their local U.S. Airway Weather Bureau. That organization recently completed a tabulation of flying weather conditions as they have existed all over the country for the past several years. Their data were assembled under three major headings: contact, instrument, and closed. Each category was tabulated for every month of the year, by years, and for the entire observation period. Because the private flyer is concerned only with contact weather, FLYING has confined the following tables to that category only. Thus the "fair-weather" pilot can determine what percentage of the weather in his home area will be flyable during the period he will want to fly.



Each white dot *represents an airway weather reporting station.*



% Contact Flying Weather

STATION	NO. YEARS COVERED	JANUARY %	FEBRUARY %	MARCH %	APRIL %	MAY %	JUNE %	JULY %	AUGUST %	SEPTEMBER %	OCTOBER %	NOVEMBER %	DECEMBER %	OVER-ALL AVERAGE %
Abilene, Tex.	1.5	93	89	87	99	91	100	100	100	96	96	97	89	94
Albany, Ga.	2.5	78	80	86	96	97	97	99	96	95	95	84	77	90
Albany, N. Y.	7	82	85	86	91	94	93	92	93	90	90	88	85	89
Albuquerque, N. Mex.	6.5	98	98	98	99	100	100	100	100	100	100	99	96	99
Alliance, Neb.	1.5	92	89	80	87	94	91	100	98	97	97	96	96	93
Amarillo, Tex.	6.5	90	83	89	89	91	97	100	99	96	93	94	87	92
Asheville, N. C.	1	77	82	85	92	91	93	89	91	87	84	94	85	87
Atlanta, Ga.	6.5	79	82	82	92	95	95	91	91	94	91	79	74	87
Augusta, Me.	3	89	86	81	86	83	80	86	87	77	80	81	87	84
Bakersfield, Calif.	3	89	98	99	99	100	100	100	100	100	100	96	85	97
Baltimore, Md.	5.5	72	79	82	83	87	88	90	87	86	79	83	74	83
Bangor, Me.	5.5	90	86	83	85	84	83	83	87	82	82	84	83	84
Baton Rouge, La.	3	81	83	82	88	93	96	96	94	89	94	87	74	88
Battle Creek, Mich.	2.5	64	77	82	87	81	95	98	94	92	89	80	72	84
Billings, Mont.	5.5	91	91	88	95	96	97	100	100	96	97	92	93	95
Biloxi, Miss.	2	73	78	74	81	98	99	100	99	97	97	90	74	88
Birmingham, Ala.	6.5	76	83	88	93	96	96	93	93	96	93	82	76	89
Bismarck, N. D.	6	90	87	88	93	94	94	99	97	96	95	87	91	93
Boise, Ida.	4.5	87	93	99	99	100	99	100	100	99	98	94	88	96
Boston, Mass.	7	82	80	82	85	83	85	84	91	86	87	85	83	84
Bristol, Tenn.	3	82	84	92	94	95	94	90	91	91	90	90	75	89
Buffalo, N. Y.	7	70	71	77	79	83	87	91	91	89	87	85	78	82
Burlington, Vt.	6	90	91	90	89	97	94	96	97	94	94	92	88	93
Casper, Wyo.	1.25	90	93	88	94	91	97	99	100	98	98	93	95	95
Charlotte, N. C.	7	79	85	86	92	94	94	91	92	95	91	90	89	82	81	87
Charleston, S. C.	6.5	82	81	85	89	91	92	95	91	90	89	82	81	87
Chattanooga, Tenn.	2.5	76	82	88	93	94	96	92	92	87	85	83	73	87
Cheyenne, Wyo.	6	92	90	87	85	90	93	97	98	94	93	95	92	93
Chicago, Ill.	6.25	59	69	71	78	78	81	89	87	84	77	79	69	77
Cincinnati, Ohio	4.33	67	76	84	90	91	90	88	87	84	79	80	68	82
Cleveland, Ohio	7	65	69	76	82	89	92	94	93	91	84	83	72	83
Clovis, N. Mex.	2.66	92	86	91	93	95	99	97	97	96	95	90	83	93
Coeur D'Alene, Ida.	6.5	72	78	94	97	98	98	100	99	98	88	78	79	90
Colorado Springs,Colo.	1.75	93	91	88	87	92	96	99	97	97	95	99	92	94
Columbia, S. C.	5	69	74	81	91	95	96	96	94	93	88	70	65	84
Columbus, Miss.	2	76	77	88	94	93	98	98	96	92	96	86	72	89
Columbus, Ohio	7	64	74	82	90	93	94	93	93	92	88	78	69	84
Connellsville, Pa.	2.5	52	62	78	81	86	73	81	76	69	64	73	41	70
Concord, N. H.	3	86	87	82	88	84	82	82	86	77	82	80	87	84
Corpus Christi, Tex.	2.5	82	78	85	80	92	100	100	100	96	98	94	85	90
Dallas, Tex.	6.33	94	86	93	94	97	98	99	100	98	96	94	87	95
Dayton, Ohio	2.5	74	75	83	88	93	94	96	93	92	90	82	68	86
Daytona Beach, Fla.	2.5	87	89	93	98	98	97	99	98	97	96	95	83	94
Denver, Colo.	7	93	90	89	92	96	97	99	99	97	96	95	93	95
Des Moines, Ia.	5.75	77	84	85	90	94	92	99	96	92	92	88	78	89
Detroit, Mich.	7	66	71	78	85	85	93	95	91	89	83	74	66	82
Dodge City, Kans.	1	84	77	77	81	84	95	98	98	93	94	98	91	89
Douglas, Ariz.	1.66	98	99	100	100	100	100	100	98	99	100	100	99	99
Elko, Nev.	7	91	94	98	98	99	100	100	100	100	100	100	97	94	98
El Paso, Tex.	6.5	98	98	99	99	100	100	100	100	100	100	100	99	99	99

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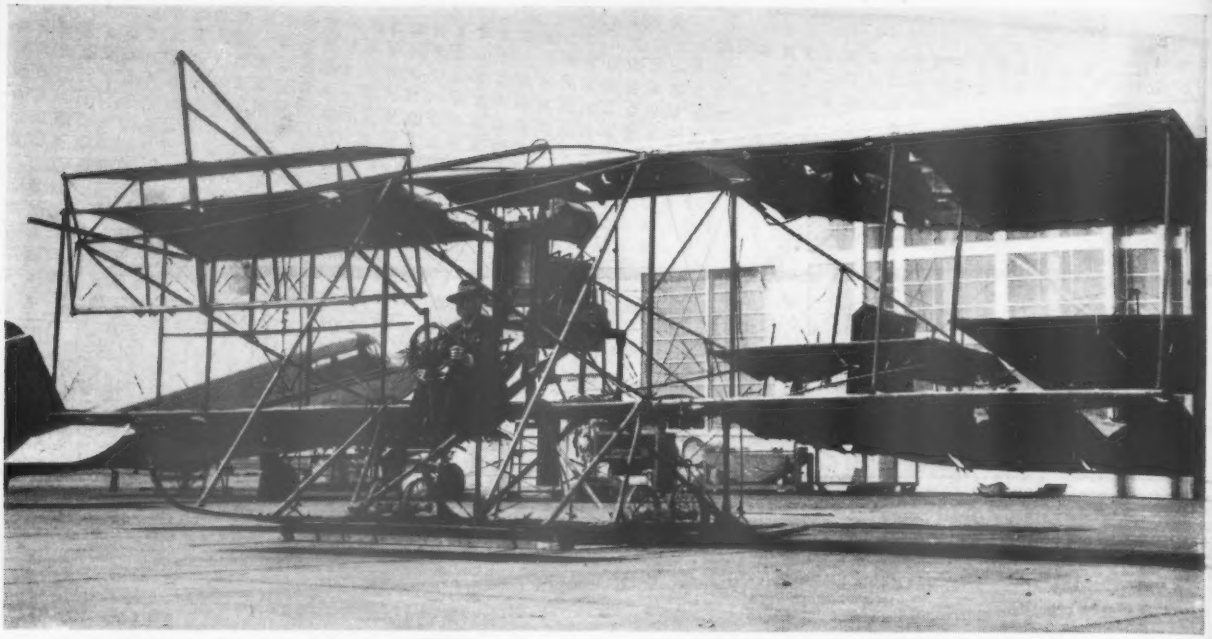
Enid, Okla.	2.5	92	89	88	91	96	96	99	98	97	93	93	77	92
Erie, Pa.	2	73	82	88	85	84	95	99	98	98	95	91	83	89
Eugene, Ore.	6.5	67	88	95	98	99	99	97	97	92	81	72	78	89
Fargo, N. D.	2.5	92	89	85	96	92	94	99	94	96	95	92	88	92
Ft. Myers, Fla.	2.5	91	89	94	94	97	98	99	99	99	98	99	89	95
Ft. Sill, Okla.	4.66	88	81	92	92	98	97	99	99	96	91	91	84	93
Ft. Wayne, Ind.	4.33	69	81	83	89	90	95	98	94	93	91	87	71	87
Ft. Worth, Tex.	6.5	91	86	93	95	96	98	99	99	98	98	95	88	94
Fresno, Calif.	4	78	94	96	99	100	100	100	100	100	98	88	73	93
Goldsboro, N. C.	1	66	74	81	93	95	93	89	90	77	78	74	72	82
Grand Rapids, Mich.	4.33	75	81	83	93	92	93	98	93	92	86	84	80	88
Great Falls, Mont.	4.33	94	89	90	96	95	95	100	100	98	95	95	96	95
Greenville, S. C.	2.5	77	84	82	90	92	96	92	93	91	90	85	70	87
Greenwood, Miss.	2.5	86	89	91	97	98	99	99	99	95	97	90	78	93
Harlingen, Tex.	2.75	81	88	90	92	97	99	99	99	97	97	93	84	93
Harrisburg, Pa.	6.33	73	79	82	86	89	90	94	89	85	83	83	76	84
Hartford, Conn.	7	83	83	84	89	89	87	87	89	83	84	85	80	85
Helena, Mont.	7	92	93	96	99	99	99	100	100	100	98	96	97	97
Houston, Tex.	6.5	78	78	80	80	93	97	96	97	93	88	86	76	87
Indianapolis, Ind.	6.5	66	72	80	87	93	94	95	95	91	87	82	73	84
Jackson, Miss.	5.5	85	81	87	94	96	98	95	97	94	92	86	77	90
Jacksonville, Fla.	6.5	85	85	88	95	97	97	98	97	94	90	88	81	91
Kansas City, Mo.	7	71	80	84	92	93	94	97	94	90	85	79	75	86
Kingman, Ariz.	2.75	99	96	98	99	100	100	100	100	100	100	99	99	99
Knoxville, Tenn.	2.5	76	83	87	93	95	97	89	91	85	80	82	73	86
Las Vegas, Nev.	6.5	100	99	100	100	100	100	100	100	100	100	100	99	100
Little Rock, Ark.	3.5	85	85	90	92	95	95	95	95	92	86	85	73	89
Los Angeles, Calif.	7	81	88	86	87	86	78	68	75	77	77	78	79	80
Louisville, Ky.	6.5	69	77	88	92	96	95	95	96	96	91	79	74	87
Lubbock, Tex.	2.5	94	83	90	93	91	98	98	97	93	93	94	89	93
Macon, Ga.	6.5	84	84	88	94	96	96	95	96	94	94	85	80	91
Manchester, N. H.	2.75	84	86	83	91	85	83	81	91	78	89	82	80	84
Medford, Ore.	6.5	76	92	98	98	100	100	97	100	100	97	83	66	92
Memphis, Tenn.	5.5	87	81	90	96	96	98	98	99	96	96	89	78	92
Meridian, Miss.	2.66	75	83	84	89	92	96	97	95	87	81	80	71	85
Miami, Fla.	3.33	97	95	96	97	99	99	100	100	99	98	98	93	97
Milwaukee, Wis.	6.5	74	80	83	90	87	89	95	90	89	87	86	79	86
Minneapolis, Minn.	6.5	83	85	85	92	94	95	96	95	94	90	89	84	90
Missoula, Mont.	6.5	77	89	96	100	100	100	100	100	100	96	90	82	94
Mobile, Ala.	6.5	82	82	81	89	95	97	98	97	96	92	86	80	89
Montgomery, Ala.	6	84	85	91	94	98	97	96	95	95	95	89	80	92
Muroc, Calif.	4	100	100	99	100	99	100	100	100	100	100	99	98	100
Nashville, Tenn.	7	79	84	88	95	96	98	96	94	93	90	82	77	89
Newark, N. J.	7	75	76	79	82	80	81	85	82	80	80	79	71	79
New Haven, Conn.	7	81	80	82	85	83	79	80	85	83	82	81	79	82
New Orleans, La.	6.5	83	83	86	91	97	99	99	99	97	95	88	78	91
New York, N. Y.	5	80	81	83	85	81	83	87	87	87	85	84	79	83
North Platte, Neb.	7	90	87	87	91	96	96	99	98	95	94	94	90	93
Oakland, Calif.	7	91	95	94	94	93	89	81	78	85	87	84	86	88
Oklahoma City, Okla.	6.5	88	82	89	92	92	97	99	99	97	93	90	83	92

% Contact Flying Weather

STATION	NO. YEARS COVERED	JANUARY %	FEBRUARY %	MARCH %	APRIL %	MAY %	JUNE %	JULY %	AUGUST %	SEPTEMBER %	OCTOBER %	NOVEMBER %	DECEMBER %	OVER-ALL AVERAGE %
Omaha, Neb.	7	81	82	83	90	95	96	99	96	93	90	83	76	89
Orlando, Fla.	4	89	87	93	97	95	98	98	98	97	94	96	85	94
Palm Springs, Calif.	1.33	99	100	100	99	100	99	100	100	100	100	100	100	100
Philadelphia, Pa.	7	74	79	80	84	85	86	88	85	81	79	83	76	82
Phoenix, Ariz.	4	99	99	100	100	100	100	100	100	99	100	99	99	100
Pittsburgh, Pa.	6.75	58	60	69	81	85	85	83	80	81	71	70	60	74
Pocatello, Idaho	6.50	84	91	96	98	99	100	100	100	100	98	96	88	96
Portland, Me.	7	89	86	86	88	82	84	83	87	81	85	84	84	85
Portland, Oreg.	5.66	83	89	93	97	98	99	98	95	85	79	77	81	90
Rapid City, S. Dak.	2.33	91	85	83	91	96	90	98	99	98	95	88	93	92
Reading, Pa.	1	58	72	74	83	83	91	90	87	85	81	79	74	80
Reno, Nev.	7	93	96	99	100	100	100	100	100	100	100	98	93	98
Richmond, Va.	7	76	84	85	91	92	89	90	90	88	84	85	81	86
Rochester, Minn.	1	89	86	75	85	90	94	93	90	94	96	87	98	90
Rochester, N. Y.	7	77	75	84	87	91	93	96	95	92	90	87	80	88
Roswell, N. Mex.	3.5	96	93	96	99	99	99	99	98	95	95	94	90	96
Sacramento, Calif.	6	76	92	98	97	99	100	100	100	100	97	89	76	93
St. Louis, Mo.	7	70	73	83	89	94	95	98	95	94	89	79	69	86
Salina, Kans.	1.33	85	89	86	98	87	94	99	100	98	97	94	79	92
Salt Lake City, Utah	6.5	73	83	95	99	100	100	100	100	100	99	84	72	92
San Antonio, Tex.	7	86	80	87	87	92	93	94	95	94	92	89	84	90
San Diego, Calif.	7	95	96	94	92	92	88	82	85	85	87	91	93	90
Santa Barbara, Calif.	1	97	98	96	97	83	88	73	79	62	63	92	98	85
Sarasota, Fla.	1.75	92	88	92	95	98	95	99	98	97	97	97	90	95
Savannah, Ga.	6.5	82	84	87	90	94	96	97	94	92	85	78	76	88
Seattle, Wash.	4.75	70	78	86	93	97	97	93	88	73	68	66	76	81
Shreveport, La.	6.5	88	85	91	93	95	96	96	95	93	90	76	91	
Sioux City, Iowa	5	86	86	83	91	96	95	98	97	93	94	87	84	91
Sioux Falls, S. Dak.	1.75	82	82	81	88	92	95	98	96	97	93	84	85	89
South Bend, Ind.	4.33	66	75	79	88	89	93	96	95	90	85	82	69	84
Spokane, Wash.	6.5	71	80	95	99	100	100	100	99	99	92	77	76	91
Syracuse, N. Y.	7	71	74	83	88	93	93	94	92	88	87	86	75	86
Tallahassee, Fla.	3.5	71	72	80	90	95	97	97	97	95	96	86	69	87
Tampa, Fla.	3.5	90	89	94	97	99	99	99	98	99	98	98	89	96
Toledo, Ohio	6.5	70	76	82	88	90	93	93	92	91	86	84	77	85
Topeka, Kans.	1.75	86	91	84	90	88	94	99	100	94	94	88	76	90
Tucson, Ariz.	3	100	99	100	100	100	100	100	100	100	100	100	100	100
Tulsa, Okla.	6.5	89	86	93	95	95	98	99	99	96	92	91	84	93
Valdosta, Ga.	3.75	80	84	86	93	95	95	93	94	92	95	93	77	91
Waco, Tex.	2.5	85	85	87	94	94	98	99	98	94	96	94	85	93
Walla Walla, Wash.	1.75	72	85	96	99	100	99	99	100	100	100	74	46	89
Washington, D. C.	7	73	79	83	86	91	91	92	92	86	80	83	76	84
Westfield, Mass.	4	88	90	85	94	90	90	88	91	87	89	87	88	89
West Palm Beach, Fla.	2.66	97	97	97	98	96	98	100	100	99	97	95	92	89	81	91
Wichita, Kans.	7	84	85	89	94	93	97	99	97	95	92	89	81	95
Wichita Falls, Tex.	2.66	95	91	93	97	95	99	100	100	98	98	97	86	95
Wilmington, Del.	1.5	63	76	79	85	82	90	84	82	81	75	83	70	79
Wilmington, N. C.	2	70	73	77	90	91	93	95	93	93	87	78	75	84
Youngstown, Ohio	1.75	45	69	82	86	89	90	85	85	84	78	72	56	76
Yuma, Ariz.	2.5	99	99	100	99	99	100	99	99	100	98	100	98	99



First airmail plane, shown with pioneer pilot Wiseman at controls, carried mail, papers and groceries 14½ miles, Feb. 17, 1911.

Forgotten Pioneer

By VIRGINIA COONTZ
Editorial Department, Oakland (Calif.) *Tribune*

World's first airmail was flown by Californian over 36 years ago.

Fred J. Wiseman, back in pilot's seat of California's first home-built airplane.

EARTHBOUND for the past 35 years and living quietly in Berkeley, Calif., is the "dauntless and fearless" aviator who, on February 17, 1911, made what now appears to be the first airmail flight in the world.

Although aviation history has taken little notice of Fred J. Wiseman, 70, he had his share of headlines 36 years ago, not only as the first airmail pilot but as the builder of the first California-made plane ever to fly.

He might have remained forgotten except for the 100th birthday of his mother, Mrs. America Wiseman, in April. Mrs. Wiseman, who died in July, mentioned that her son was an aviation pioneer and the story of his early career was then revealed. Even men connected with him in business—he became an expert in the automobile industry—didn't suspect that their associate had once pushed a flimsy-looking "kite" some 14½ miles from Petaluma to Santa Rosa with a batch of mail, a bundle of newspapers for delivery and a load of groceries way back in 1911.

Paul Edward Garber, curator of the Division of Aeronautics of the Smithsonian Institution, recently ran down Wiseman's story on his own, visiting Wiseman at his home to gather data connected with the construction of the plane and the initial airmail flight.

Since then he has notified Wiseman by letter that his flight preceded by one day the hop made at Allahabad, India, which previously had been considered the first heavier-than-air mail flight in the world.

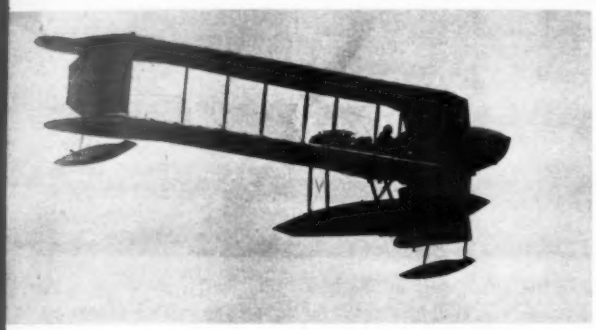
The India flight was made February 18, 1911, during the United Provinces Exhibition, according to Garber. An Englishman, Capt. Walter Windham, arranged with postal authorities to carry mail by plane from the exhibition grounds on the banks of the Ganges River to Naini, five miles away.

Six thousand cards were sent to the exhibition for this stunt and history since has labeled it as the first modern airmail flight, and the man at the (*Continued on page* 79)

SO YOU Think That's New?

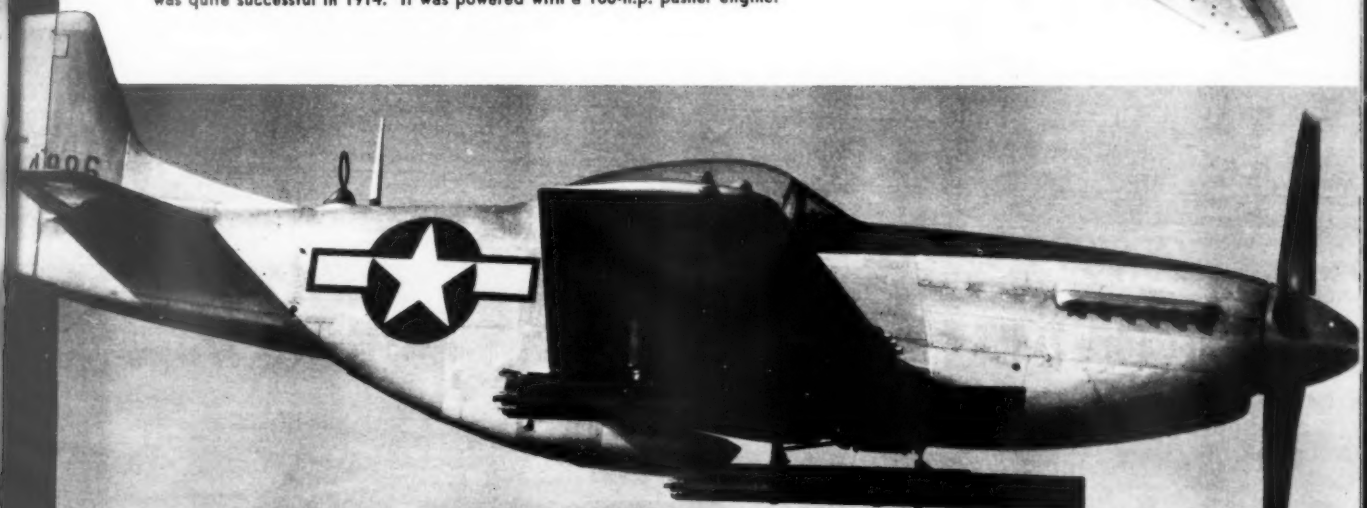
JUST because you hadn't heard of rocket-firing aircraft before World War II does not mean they hadn't been used before. They were, in 1915. Not many things in aviation even today are really new. Most are as old as the rockets, or older.

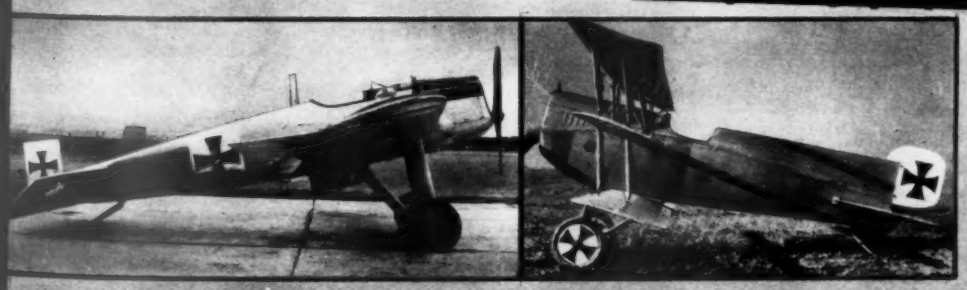
On this and the following pages are a few devices you may have thought were brand new. Actually, they were thought up so long ago that the names of many of their originators have been forgotten in the dust of abandoned filing cabinets.



FLYING WING

Northrop's widely-publicized XB-35 (right) is considered a radical innovation even today. Yet the Burgess-Dunne flying wing seaplane (directly above) was quite successful in 1914. It was powered with a 100-h.p. pusher engine.

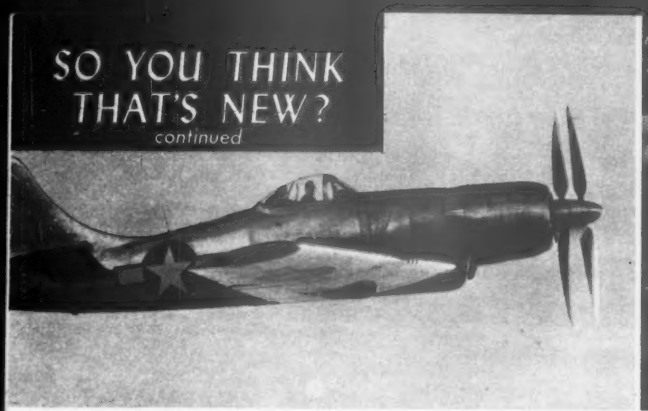




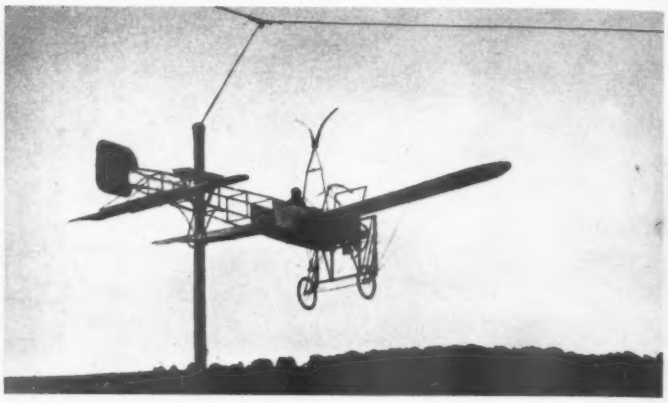
DORSAL FIN AND EXTERNAL RADIATOR

German Junkers J-2 of 1916 (far left) used one of the earliest external center-section radiators. In 1917, the Austrian Lohner triplane (left) had one of the first long dorsal fins ever used.

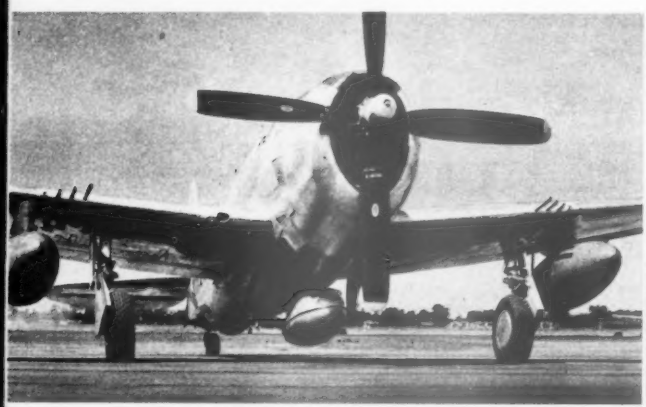
SO YOU THINK THAT'S NEW?
continued



COUNTER-ROTATING PROPELLER Boeing's XF8B (left) is a modern airplane with this prop. But the French Deperdussin of 1912 (right) had such a prop, and was a tail-first pusher monoplane in addition.



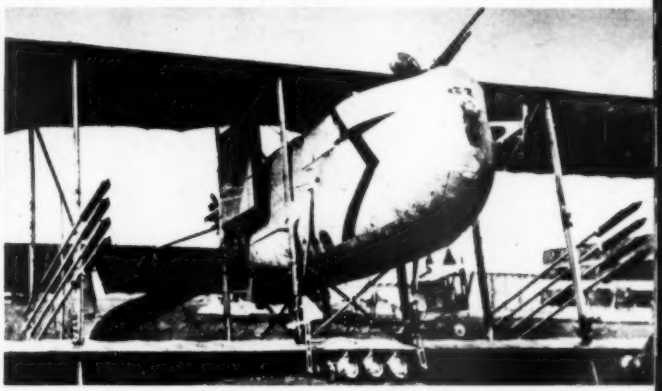
BRODY SYSTEM This interesting innovation got a lot of publicity during the latter days of the war. U.S. liaison planes in all parts of the world used it (left). But Louis Bleriot, the French ace, had done about the same thing in 1913 (right).



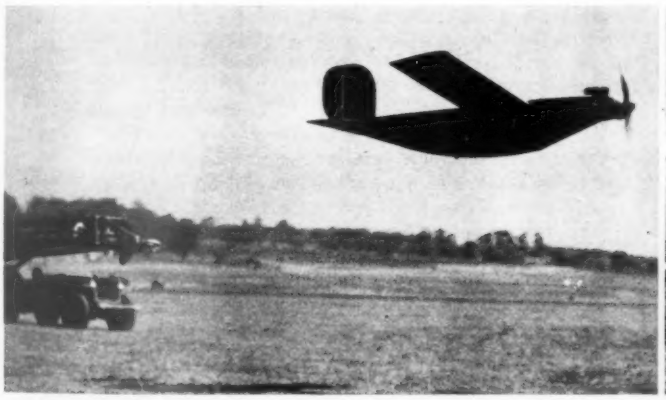
DROPPABLE FUEL TANKS A major tactical surprise of World War II was the AAF's droppable fuel tank for fighters like the Thunderbolt at left. First such tank was on Dornier D-1 (1918), which also was a trim all-metal fighter.

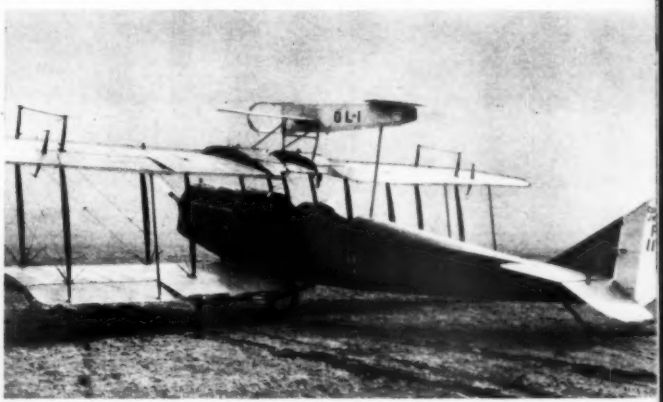
AMPHIBIOUS FLOATS The single set of floats on the C-47 (left) cost the AAF nearly $100,000 in 1943. Though an experiment, it was first tried in 1919 on the Loening M-81 (right). Similar floats have been tested on personal planes.

PROPELLER IN TAIL This idea is so unusual it is only now being experimented with by Douglas (Cloudster at left). Compare it with the French Borel pusher of 1913 (right). Douglas also tried it on its XB-42, Waco on its Aristocraft.

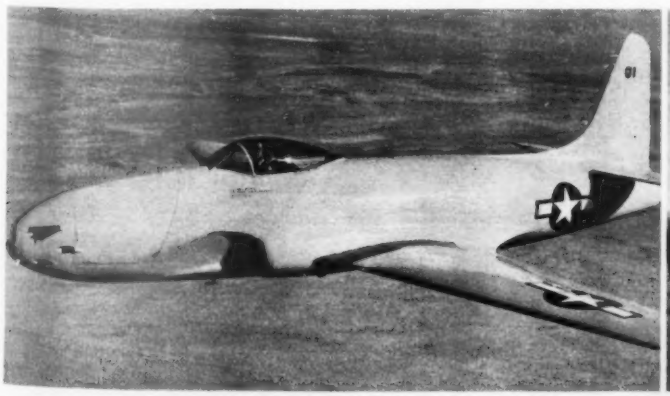


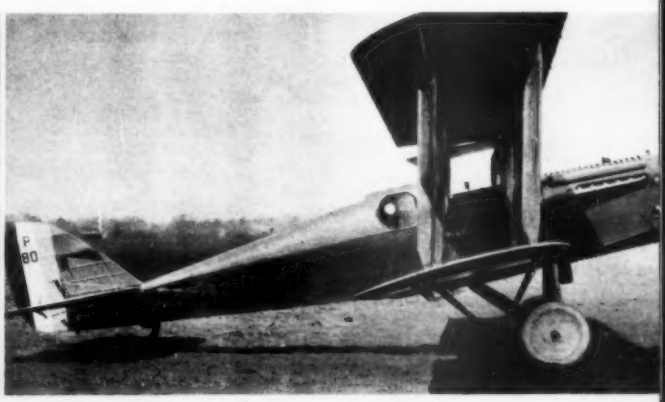
ROCKETS The Marine Corsair at left is carrying as deadly a load of armament as any modern fighter could, with six machine guns and eight rockets. In 1915, though, the French were using rockets (right) to shoot down observation balloons. Note lights under Farman wing.





TARGET PLANES They were radio-controlled in the last war, like the OQ-14 at left. And for a long time they were kept secret. But in 1918 the AAF had the same basic idea. A glider was mounted atop a Jenny (right) and dropped by plane's pilot.





PRESSURIZED COCKPIT Only the very latest aircraft, like the Lockheed P-80 (left) have this modern innovation. Then the history books turned up the fact that the first pressurized cockpit was installed in a DeHavilland 9 back in 1920.

Home-made Overhaul

Mrs. Asten carries re-covered ailerons from the workshop to the kitchen, where they will be doped.

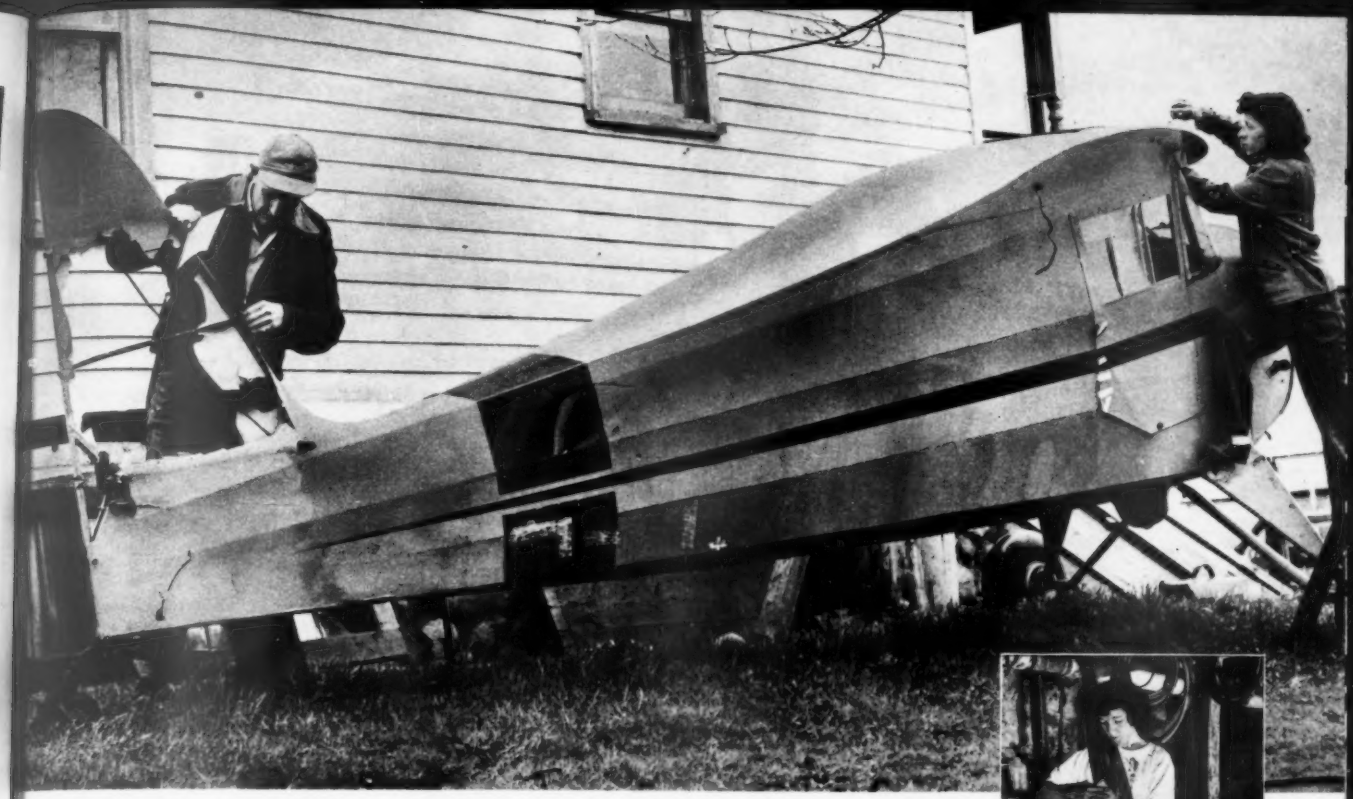
You too can overhaul your plane —if you have time and know-how.

THE William P. Astens' aircraft assembly line is scattered over most of a farm at Saddle River, N. J., four miles north of Ridgewood. The plane engine is in the basement, the fuselage is in the barn, and most of the parts are in the heated dog kennel, which is currently without dogs. The Astens are doing a complete overhaul job on their 50-h.p. 1940 Aeronca *Chief*. Mrs. Asten is the pilot of the family, with close to 800 hours. Her husband is an electrical engineer with Federal Telegraph and Radio Corporation. He is not a pilot but has accumulated 700 hours as amateur navigator for his wife. The Astens' farm has its own landing strip. Their repairs are being carefully checked by an A&E mechanic, and the plane must be okayed by the CAA before it is flown. The overhaul will cost the Astens about $500 for materials and parts, compared with an estimate of $800 from an approved repair base. Thus the $300 saving is costing them about 500 manhours, but the Astens aren't looking at it that way. With them it's been months of fun. By now they are flying their home-overhauled plane from their own back-yard strip.

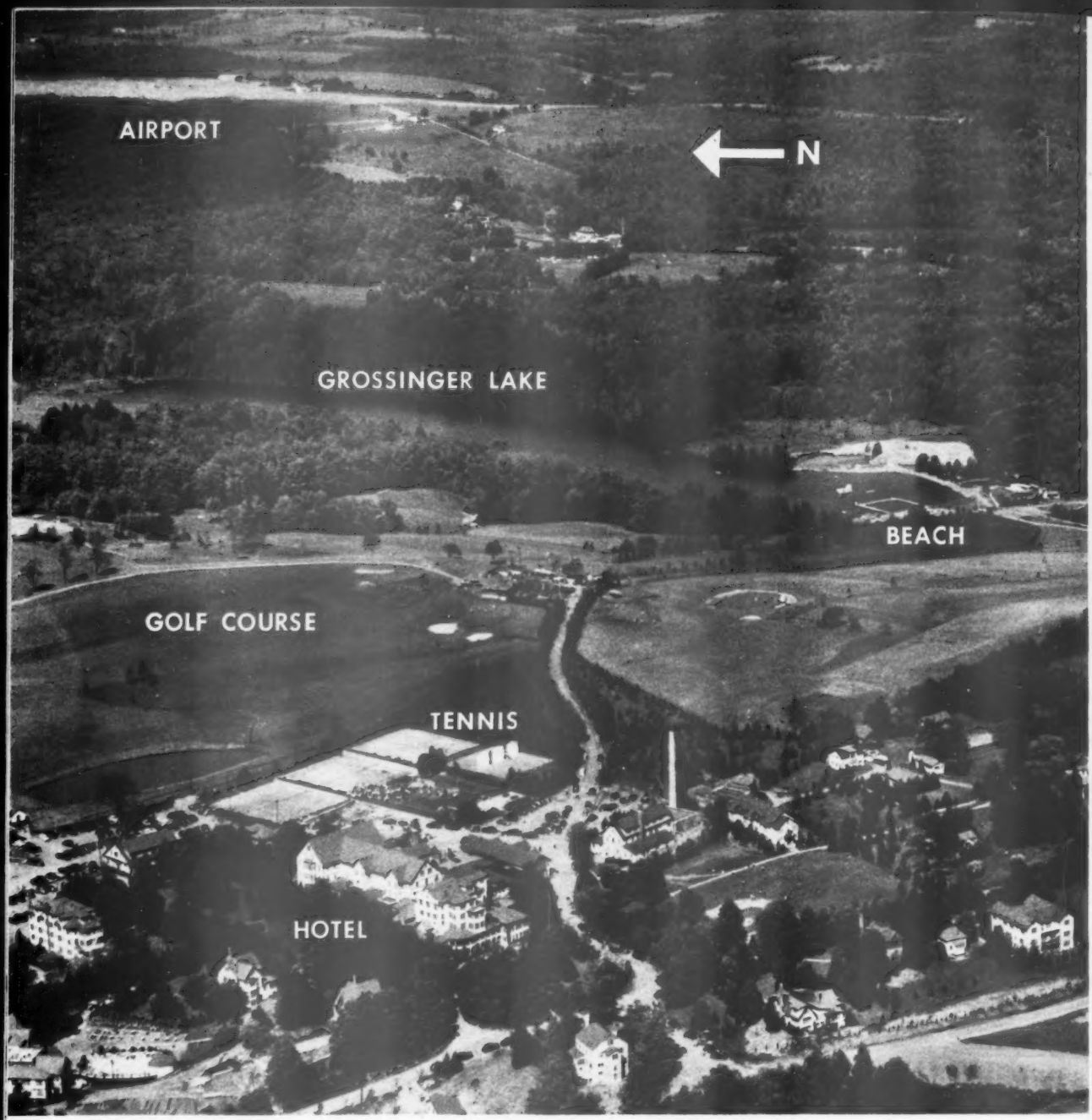
Fittings are tightened and tested as re-assembly starts. Most engine parts have been magnafluxed.

Sorting motor parts is a tedious job. Marked cups keep track of the parts.

Spark plugs and valve inserts are carefully checked for tightness and fit.



Airplane overhaul is difficult and time-consuming. Fabric is stripped off fuselage (above) empennage, wings and control surfaces and new fabric installed and given eight or 10 coats of dope. Plane is almost entirely disassembled, checked, and new parts installed. Mrs. Asten sands propeller (right), checks aileron fit (below).



Plane's-eye view of Grossinger's swanky hotel-airport. Clustered around the main hotel building are guest cottages and annexes. Two-runway airport, upper left, is two miles from the hotel, but three station wagons and two autos provide local transportation.

Private lake offers rowing, swimming for flying visitors.

Riding academy has a dozen horses, ponies for the equestrians.

Golfing on stiff 18-hole course is a number one hotel attraction.

Six tennis courts are filled on warm summer day at Grossinger's.

Air commuters save weekend hours by landing at hotel-airport where automobile, furnished by hotel, waits to meet the travelers.

Airman's Lodge

By

JOHN H. LANCASTER

New York Editor of FLYING

THE combination resort hotel-airport—dream of aviation enthusiasts for years—is a reality today in Sullivan County, N. Y.

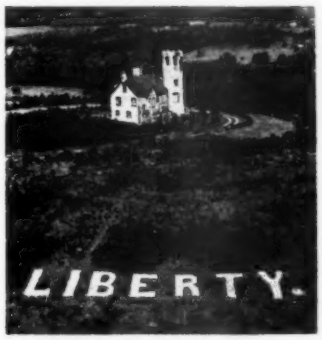
Airport construction at luxurious Grossinger Hotel cost over $100,000 in the past year. But in return for the expenditure, the Liberty, N. Y., resort became an air-age pioneer.

Work-weary and hour-short New Yorkers can now slip out of the city for vacations or weekends—and spend only an hour for a round trip which previously took eight hours from a crowded weekend.

The port itself, brain child of advertising executive Milton Blackstone, is carved off the top of a 1,600-foot hill—once part of a farm adjoining the hotel's acreage. One north-south runway along the hill's backbone is 2,800-feet (long enough to handle a DC-3 recently), but will be extended in the immediate future to 4,000 feet. Another 1,800-foot rock and stone runway runs along a shoulder east-west.

Hotel owners Harry and Jennie Grossinger hired Vernon Wright, formerly AAF pilot for Averell (*turn next page. Text continues on page* 91)

PHOTOS BY WALTER STEINHARD



Castle-like estate is excellent check point two miles northwest.

Hotel airport brings slash in travel time for New York flyers.

Repair job is handled by Jim Parrish, on the ground, and Kenneth Smith, mechanic, while Vernon Wright and Jack Katstra use spray gun on Stinson.

Wright clears equipment from space in large barn where he plans to build a milk bar and lounge. Remainder of barn will be converted into a hangar

Airman's Lodge *continued*

Flying pointers are discussed at regular meetings of student pilots and others from district. Instructor is visiting Lieut. Oliver W. Helmrich.

Quonset hangar holds 15 planes. Young Vernon taxis in left foreground; his father, Katstra, and Smitty push one of the Cessnas out of the buildi

An Open Letter

To City Fathers Anytown U.S.A.

By RUSS JOHNSTON

Dear Sirs:

Running a city today is a big job. It's almost impossible for one man to keep his eye on the many little details of civic government. The job of running the various city departments must be delegated to others, and often *these* men are so busy that they cannot cover all the small details of their department.

This letter has to do with your airport. If you receive it through the mail, it means that some competent pilot who has visited your airport recently has found your service or facilities lacking in some important aspect. He has checked this item to bring it to your attention.

There are a great many people flying airplanes today. They are flying them both for business and pleasure. Many of these people will judge your city by the way they are treated at your airport. If the attitude is unfriendly, or one of complete indifference, pilots and their passengers may regard your city as unfriendly and indifferent. Some lack of service or courtesy is understandable—but often it is downright infuriating.

People today are flying planes at great personal expense because airplanes are not yet sold and flown in volume sufficient to reduce costs. These people are still the pioneers of a great new industry and they deserve the best treatment you can afford to give them. They do not expect you to operate your airport at a loss but they do expect courtesy and convenience. They buy your gas, stay at your hotels, use your transportation system, patronize your merchants, and spread the word—good or bad—about your city.

Look over the items checked below and see if you can't improve some of them. Many improvements will represent no cost at all; just a re-check of the quality and nature of the people you are now employing. Other items will require such a small expenditure that even the most modest airport budget will stand it. In some cases, all that is needed is an educational course for your airport employees.

You may point out that your facilities are leased to operators and you have no control over the way in which they conduct their business. If this is true, then it is a poor arrangement for your city and ought to be corrected.

The author has done considerable flying since V-J Day—more than 100,000 miles. Many of the airports he has visited are models of operation; others are a disgrace to the city whose name the airport bears. Here are some of the items you should check and see how your airport rates.

☐ **MARKINGS**
Your city and airport should be air-marked. Runways should have the compass directions painted on them, and if you have one certain hangar for visiting aircraft, it should be so marked. Field name and altitude should be prominently displayed. Also control tower frequency.

☐ **RUNWAYS**
Needless to say, your runways should be of ample length and in good condition. From 1,500 to 2,000 feet is no longer adequate for today's private planes. Turf and sod runways are all right if properly rolled and drained. They should be prominently marked when not in condition. (*Continued on page* 93)

Flying Up To Canada?

By FRED HAMLIN

Eastern Editor of FLYING

American pilots are welcomed by our northern neighbor. The red tape has been simplified.

IF THE good news hasn't reached you yet, one thing you needn't worry about if you're flying to Canada is landing fees. They have been waived for U. S. lightplane flyers at Government-operated airports, and that includes most of the good ones.

We confirmed this with an exclusive statement to FLYING from D. Lee Dolan, director of the Canadian Government Travel Bureau, and then asked him specifically about seven of the airports appearing in the accompanying map—Moncton, Montreal, Toronto, Windsor, Winnipeg, Lethbridge, and Vancouver. "IT COSTS NOTHING REPEAT NOTHING TO LAND AT ANY OF THESE FIELDS WITH A LIGHTPLANE UP TO 5,000 POUNDS." was the telegraphed reply.

We also checked on virtually all of the fields appearing on the map on the U. S. side of the line. No fees. What's more, these U. S. fields have an AOPA rating of "Above Average" with two exceptions—Detroit City ("Below Average") and Cut Bank, Mont., ("Average").

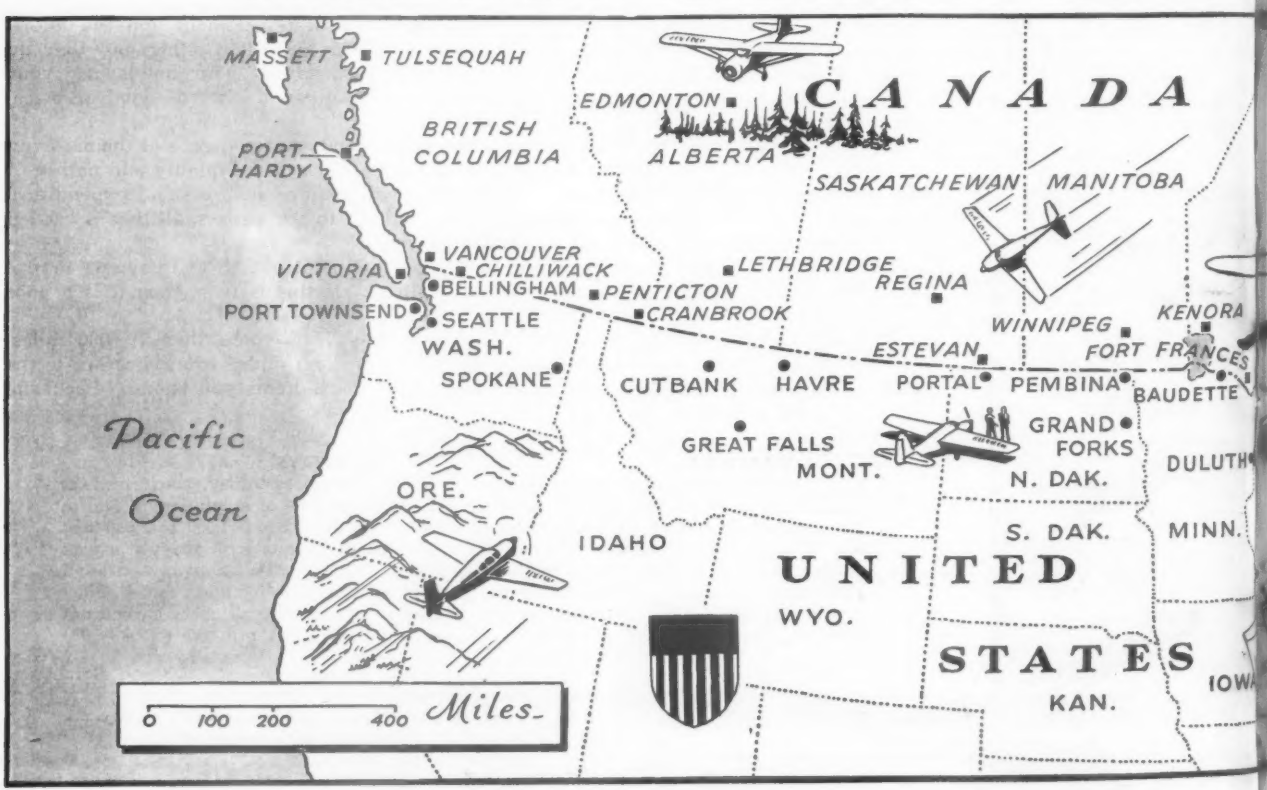
Aside from the Customs problem, with a little luck you will find flying to and from Canada not much more difficult than flying here.

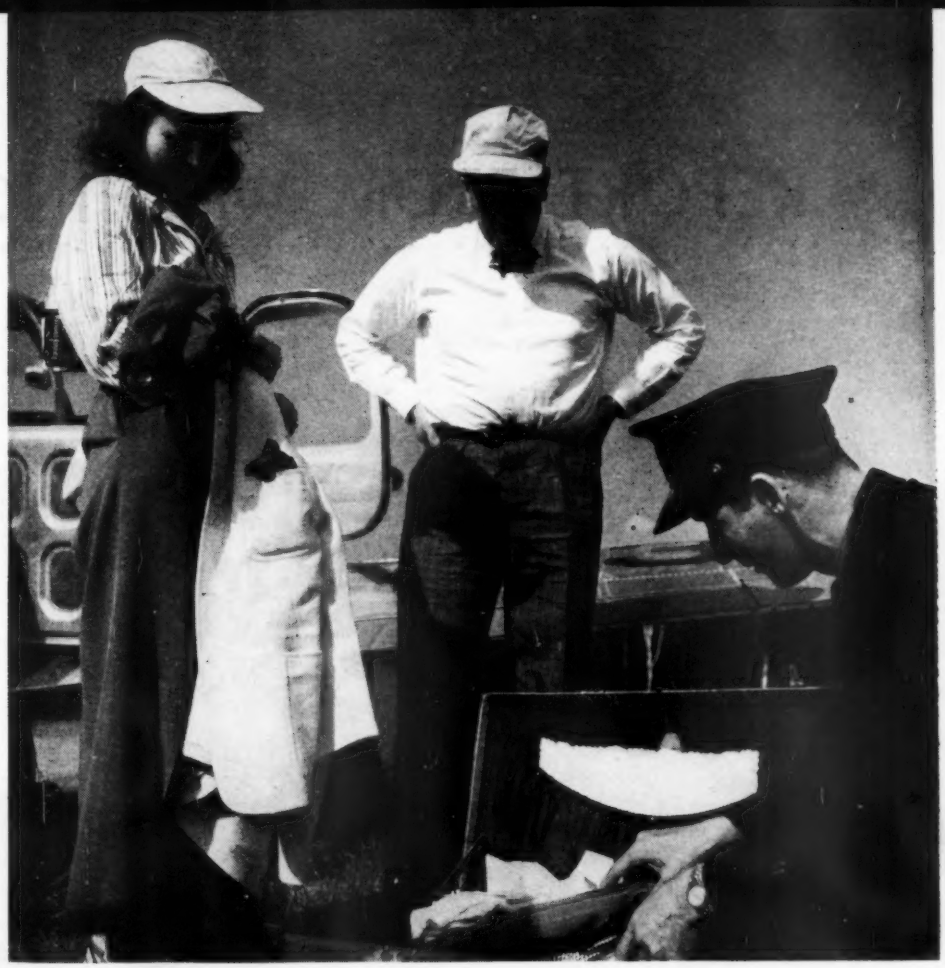
You'll need the luck to find the Customs personnel on the job when you land—and willing to check you in or out as quickly as possible. At most fields, Customs men keep conventional office hours. On call 24 hours a day, they can be brought to the field from their homes if you want to make an issue of it—but you have to pay for the trip, and their overtime. There have been cases where this has cost a lightplane owner as much as $60.

Even if Customs men are at the field on this side of the line you may encounter additional trouble. Our best information is that, in contrast to the uniform courtesy of the Canadians, our bureaucrats treat you as if you were aliens if not subversive. We checked on this in Washington. The reply was a question. "What can you do when the U. S. Customs force along the Canadian border has been cut by Congress from 252 to 43 men?" We don't know the answer to that one, but we do know that if you run into trouble you can appeal to Frank Dow, Acting Commissioner of Customs, Treasury Department, Washington, D. C., who will try to get you squared away.

Before crossing the border, here (*Continued on page 74*)

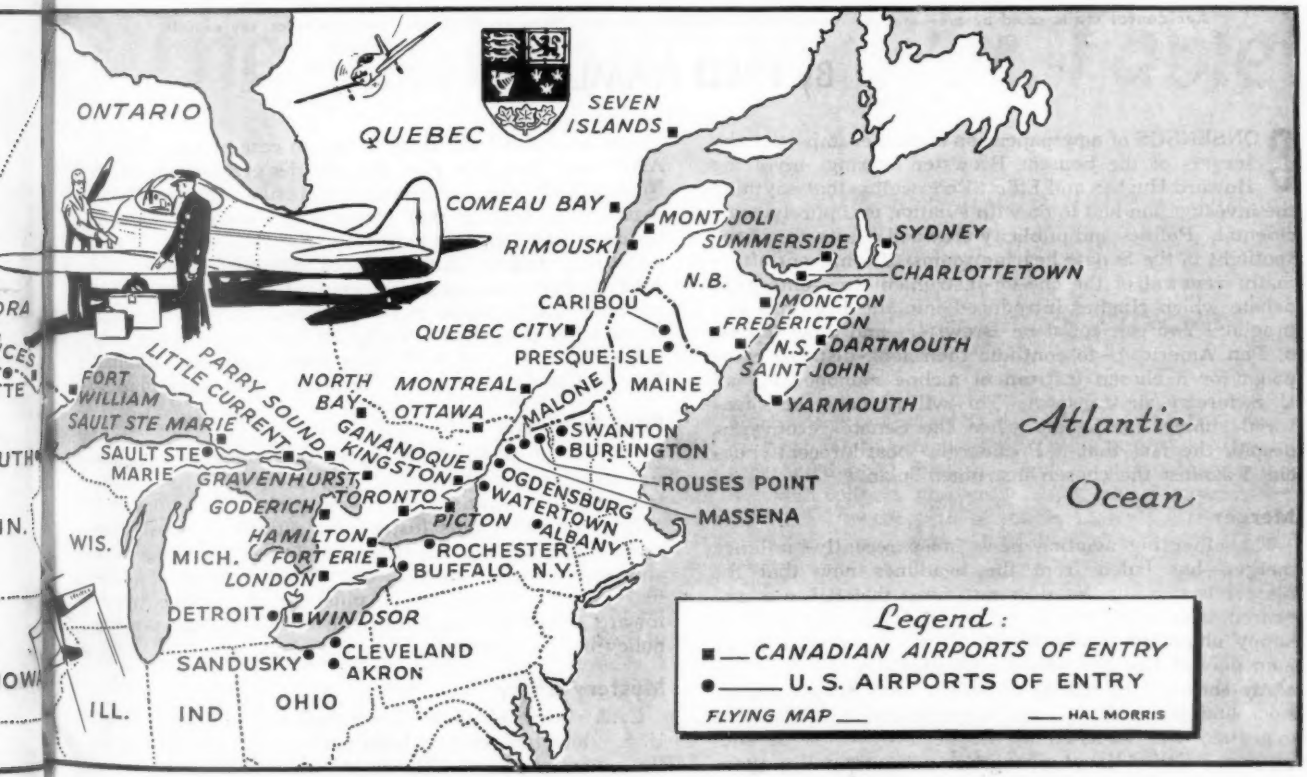
AIRPORTS OF ENTRY ARE CONVENIENTLY LOCATED



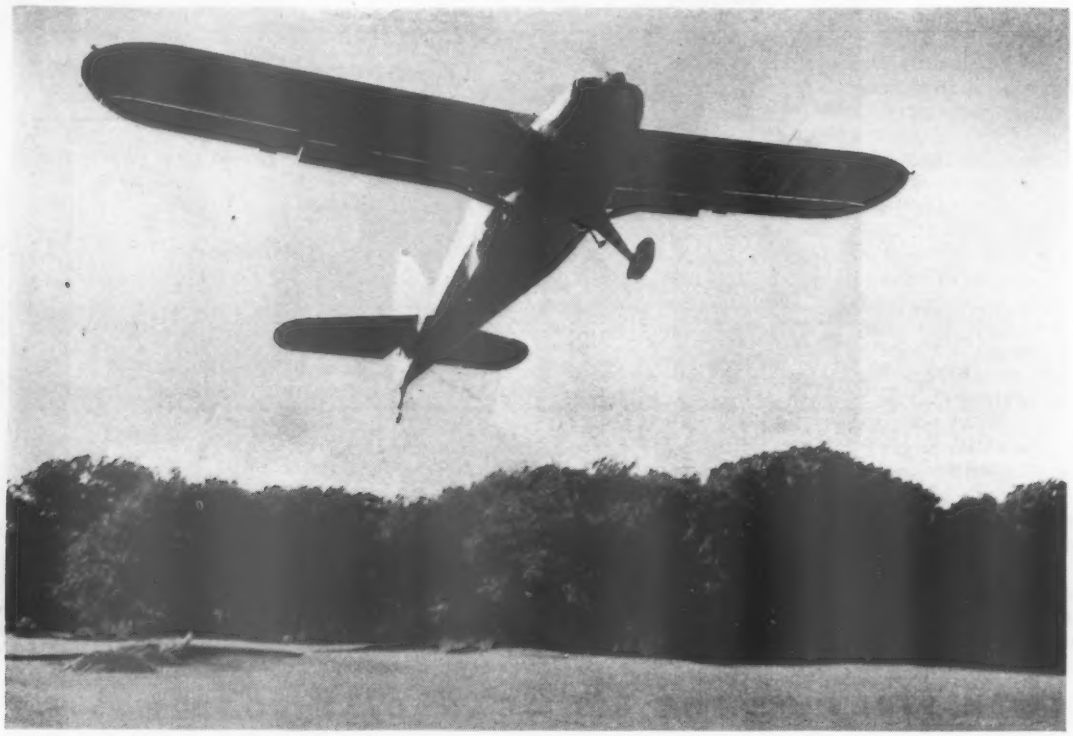


Canadian customs men are courteous and thorough. It is important to plan going through border-crossing formalities at regular office hours, however. Otherwise the charges are high.

ON BOTH SIDES OF THE U.S.—CANADIAN BORDER



REPORT FROM WASHINGTON



Accidental stalls could be prevented by mandatory stall-warning devices. They would reduce insurance rates, say experts.

By FRED HAMLIN

CONSENSUS of newspapermen and other impartial observers of the Senator Brewster hearings involving Howard Hughes and Elliott Roosevelt is that anything the investigation had to do with aviation was purely coincidental. Politics and publicity crowded planes out of the spotlight in the Senate hearing rooms. Permanent aftermath: renewal of the chosen-instrument-free-enterprise debate which Hughes introduced into the Brewster imbroglio. You can count on Brewster—and Juan Trippe of Pan American—to continue their long-distance campaign for a chosen instrument airline monopolizing all U. S. foreign air transport. This will probably be a featured subject for debate when the Senate reconvenes, despite the fact that a Presidential board recently decided against the chosen instrument plan.

Merger

The other big aviation news story recently—military merger—has faded from the headlines now that the merger is law but this does not mean that it has disappeared from page one for good. Publicly, the Navy is happy about the whole thing. Privately, many a Navy man doesn't like the new set-up at all. Some have already shown it by asking to resign their Navy commissions and join the new and more powerful AAF. This migration was knocked in the head by brass in both services Other Naval officers are going around muttering that the Naval air arm could get four times as many planes in action four times as fast in case of war, despite AAF boast that it is now the world's greatest air force. Naval officers are also prepared to resume the traditional battle with AAF if that group starts giving orders or trying to make changes harmful to Navy's air arm. Peace, meantime, reigns on both sides of the Potomac, and AAF, at Pentagon headquarters, continues to protest that no move will be made in Navy's direction. Bureaucracy being what it is, this friendly attitude is probably only temporary. And if AAF does move you can bet that Navy pilots will swarm to the attack with guns blazing.

Pilot Ratings

Sources in Washington report that some airlines are seriously considering hiring only men with full airline transport pilot's ratings for co-pilot jobs. Co-pilots need only commercial plus instrument ratings on most lines now. Training them for transport ratings is an expensive and lengthy airline budget item. A large supply of qualified transport-rating pilots, plus current airline trends toward economies, may result in an all-transport-rating policy becoming standard.

Mystery Story

CAA's Airman's Guide, for a decade a handbook for all U. S. pilots, has recently been cut to a third of its size on the plea of economy. Notices to airmen will be continued under the old title but flight (*Continued on page* 98)

Navy's KU3N-1 is an air-to-ground missile launched by a mother plane and guided by remote control to its target at 500 m.p.h.

The Push-Button War Fable

By
WILLIAM WINTER

Robot warfare may be on its way, but it's still years in the future, author explains.

"WE CAN achieve space flight very shortly if anyone cares to foot the bill," recently declared a writer in a national magazine, "for there are no basic scientific problems intervening. The problem is not primarily an engineering problem, but a political, financial, social, and military one. What remains to be done is engineering development, much, much simpler than the atom bomb."

While no man will go out on a limb these days even to say anything is unduly difficult, it is still necessary to crawl before we can walk.

If we take the military's description of a guided missile as "an uninhabited aircraft, the trajectory of which is influenced by a mechanism within itself," then there are a number of testing ranges for such weapons. Besides the Naval Air Missiles Test Center operated at Point Mugu, Calif., by BuAer, BuOrd has its own over-water range at Camp Davis, N. C., and a short-range location at the Naval Ordnance Test Station at Inyokern, in the Mojave Desert. Much more publicized is the AAF and Army Ordnance range at White Sands, N. M. The more visible signs of a program that involves the services, various Government bureaus, colleges and universities, and industrial firms from coast to coast, these ranges barely suggest the importance, scope, or the difficulties of the guided missile program.

With almost unlimited funds, slave labor, and a vast system of subcontracting, the Germans required about eight years to develop V-2 to the point where it would tote 1,000 kilograms across the English Channel. The *Bat*, a Navy glide bomb and, incidentally, still the only guided missile in operational service by the Navy, took 8,760,000 man hours to perfect. The basic problem in guiding a missile is knowing where it is and what it is doing at

SOME U. S. GUIDED MISSILES

Designation *	Airframe Manufacturer	Description	Bomb Load	Control	Gross Weight	Remarks
GB-1	AERONCA	12' wing span, horizontal stabilizer, two vertical stabilizers	2,000 lbs. M-34	Pre-Set	2,338 lbs.	Project terminated 1/30/45
GB-2	BELLANCA	Mid-wing, double-tailed	2,000 lbs AN-M66	Pre-Set		Project terminated early 1942
GB-3	TIMM	Low-wing, double-tailed	2,000 lbs. AN-M66	Pre-Set		Project terminated early 1942
GB-4	AAF	AAF streamlined design. two axis control	2,000 lbs. AN-M66	Radio Control	2,536 lbs.	Carries television camera
GB-5 (C & D)	AERONCA	Similar to GB-1	2,008 lbs.	Homing	2,445 lbs.	Light contrast seeking, for use on marine targets
GB-6	AERONCA	Similar to GB-1, 3-axis control	2,008 lbs.	Homing	2,488 lbs.	Heat seeking
GB-7 (B & C)	AERONCA	Similar to GB-1	2,008 lbs.	Homing	2,318 lbs.	Homes on radar reflected from target
GB-8	AERONCA	Similar to GB-1, rudder on left vertical stabilizer	2,008 lbs.	Radio Control	2,558 lbs.	Operator follows guide flares visually
GB-9	AAF	Similar to GB-4	2,000 lbs. AN-M66	Radio Control		Dives steeply, then skims ground. Terminated 11/3/44
GB-10	AERONCA	Similar to GB-1		Television		Was not tested. Project terminated 1/30/45
GB-11	AERONCA	Similar to GB-1	1,150 lbs.	Pre-Set	2,175 lbs.	Chemical dispenser, altitude control with aneroid. Radio control possible
GB 12	AERONCA	Similar to GB-1	2,008 lbs.	Homing	2,503 lbs.	Light-seeking
GB-13	AERONCA	Similar to GB-1	2,008 lbs.	Homing	2,438 lbs.	Flare-seeking
GB-14	AERONCA	Similar to GB-1	2,008 lbs.	Radar Homing	2,583 lbs.	Transmits radar signal, homes on reflection
GT-1	AERONCA	GB-1 modified to carry M-13-2A Aircraft torpedo	2,120 lbs.	Pre-Set	2,455 lbs.	Torpedo released when trailing paravane hits water
JB-1	NORTHROP	Flying wing type, two turbo-jet engines	Two 2,000 lb. bombs			
JB-2	AAF	Similar to German V-1, with intermittent jet engine	1,900 lbs.	Pre-Set	5,021 lbs.	Another JB-2 version is radar-controlled. Terminated 3/1/46
JB-3	HUGHES	Aerodynamic configuration of 3 wings placed 120° apart				Air-launched guided missile for use against enemy bombers and pilotless aircraft
JB-4	AAF	Modified GB-4 airframe, with intermittent jet engine	1,000 lbs.	Remote-Controlled	Approx. 3,000 lbs.	Terminated February, 1945
JB-10	NORTHROP	Flying wing, with intermittent jet engine	3,209 lbs.	Automatic Flight Control	7,213 lbs.	Two warheads located on leading edge of wing. Project cancelled March, 1946
XBG-1	FLETCHER	Low-wing monoplane glider	2,000 lbs.	Radio Control		Television camera carried
XBG-2	FLETCHER	15 place troop glider, wood and fabric	2,000 lbs.			
XBQ-1	FLEETWING	High-wing, wood fabric; two Franklin XO-405-7 engines	2,000 lbs.	Radio Control		Television equipped bomb, can be used with pilot on long range and checking flights
XBQ-2A	FLEETWING	Same as XBQ-1 except with Lycoming -435-3 engines				
XBQ-3	FAIRCHILD	High-wing plane with two Ranger V-770-15 engines	4,000 lbs.	Radio Control		Carried television, can be used with or without pilot; project cancelled
XBQ-4	INTERSTATE	Two Lycoming O-435-2 engines	2,000 lbs.	Radio Control		Borrowed from Navy BuAer for study; used with or without pilot
BQ-7	BOEING	B-17 modified	18,500 lbs.	Radio Control	65,000 lbs.	Pilot and co-pilot bail out after take-off; "Mother Ship" guides plane to target
BQ-8	CONVAIR	B-24 modified		Radio Contro		Used in same way as BQ-7

*Data on GB-15 is not available. JB-5, 6, 7, 8 and 9 and XBG-3 were cancelled before deliveries were made. XBQ-5, 6 and 6A did not get beyond the proposal stage

Navy guided missile types as of April included:
Lark (KAY-1 and KAQ-1) surface-to-air rocket powered.
Gargoyle (KUD-1) air-to-surface, radio-controlled glide bomb.
Katydid (KDD-1) air or catapult launched jet-powered target.
Gorgon (KUN-1) ship-to-shore area bombing; rocket or catapult launched, jet-powered
Loon (KUW-1) the buzz bomb.
KU3N-1 air-to-surface radio-controlled
KU3N-2 with two rocket motors for transonic research.

In addition, a number of test rockets were underway for various purposes—including supersonic research and high-altitude sounding. These included the NACA's *Tiamat*, Boeing Aircraft's *GAPA*, and North American's *NATIV* (North American Test Instrument Vehicle). The Martin Aircraft Company was developing *Neptune*, a high altitude rocket designed to reach heights of over 1,000,000 feet.

all times. Since radar is refracted by the ionosphere, a high flying missile, like a fish under water, is not where it appears to be. This compels the compilation of radar refraction tables, dependent on the painstaking accumulation of data from test rockets. Line-of-sight limitations of radar are a worse problem. High frequencies are accurate but of short range; low frequencies are long ranged but incapable of precise fixes. The search is for a median that will give accuracy at long range.

The Guided Missile Committee, of the Joint Research and Development Board, is headed by Dr. F. L. Hovde, President of Purdue University. It is supposed to coordinate the research and development aspects of the program being prosecuted by the Army through its Air Materiel Command and the Office, Chief of Ordnance; and the Navy through its Bureau of Aeronautics and Bureau of Ordnance (guided missiles section established in December, 1945). When in May of 1946 (responsibility

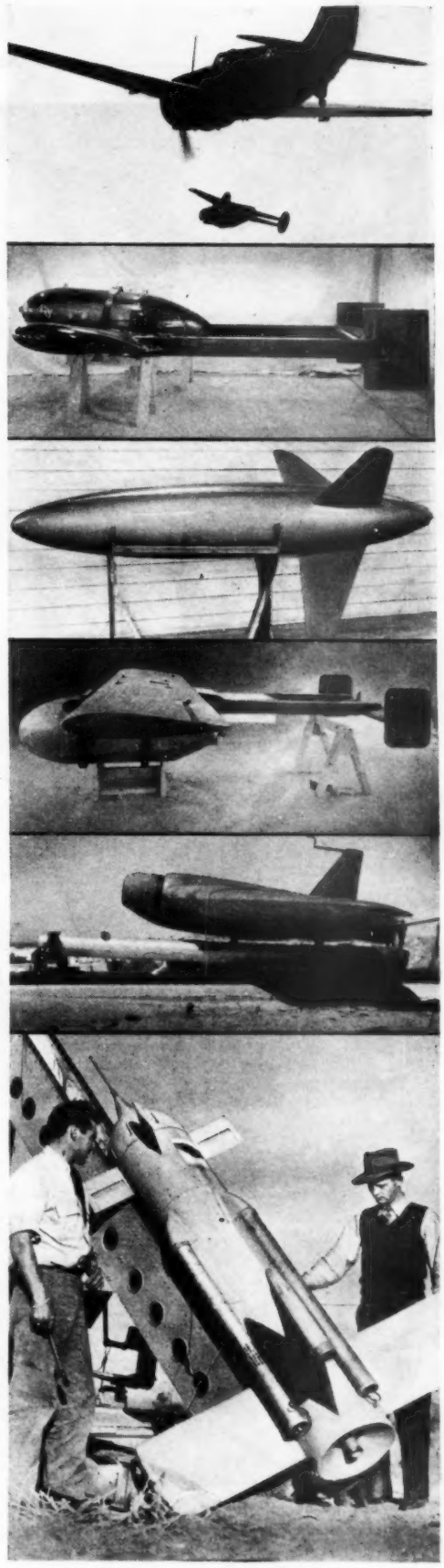
Navy Loon (KUW-1), an improved version of German V-1 buzz bomb, is launched by rockets at Point Mugu, Naval test center. Experimental Loons are fired at targets 60 miles out in the ocean. Most of them are launched from powerful catapults.

was not forthcoming until October 7) the Army created its research and development division, the Chief of the AAF was made directly responsible with the War Department for guided missile research and development. In the event of overlapping endeavors such as will arise between AAF and Ordnance, Maj. Gen. Henry S. Aurand, director of the Research and Development Division, acts as referee.

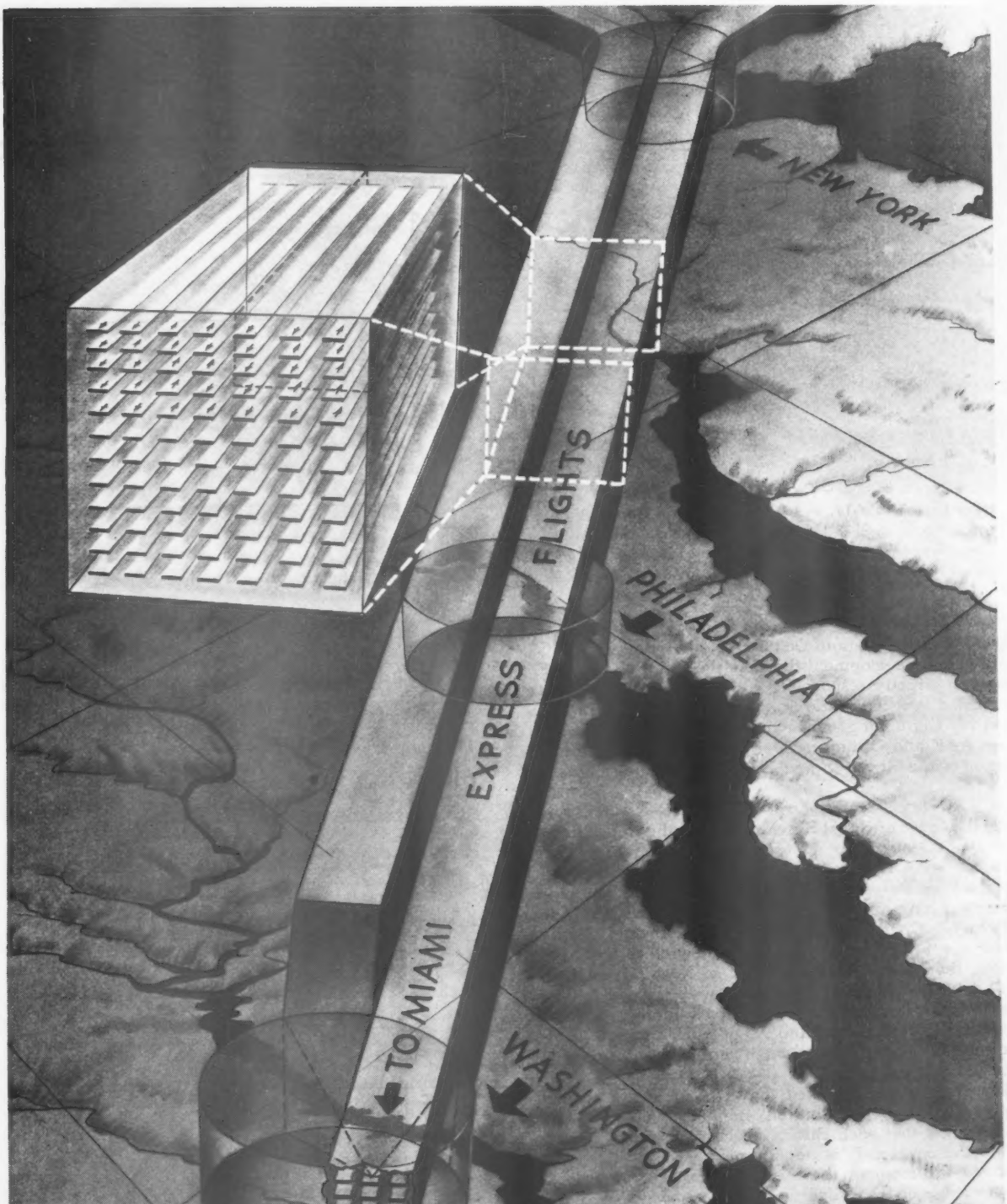
On the Navy side, Public Law 588 (HR-5911) established the Office of Naval Research within the Department to replace the old office of Research and Inventions. This office will work closely with AAF research agencies and with the Joint Research and Development Board. BuShips and BuPer (training) are interested along with BuAer and BuOrd. Operationally, in view of the obvious forthcoming revolution in naval tactics, a new office has been created, that of the Assistant Chief of Naval Operations (air) under DNCO (air). This office and the Headquarters, Army Air Forces are responsible for interdepartmental coordination. Both Army and Navy work through Government laboratories, and through contracts with universities and industrial firms.

While we take for granted that a possible future war may be fought by "push-button" methods, we should not kid ourselves that such Buck Rogerish armament is just around the corner. It is not for next year, or the year after. At the moment there is an almost complete lack of knowledge of the properties of the atmosphere above 75,000 feet, of adequate theory for the behaviour of bodies at more than three times the speed of sound, of a presently operating honest-to-goodness supersonic wind tunnel, and of a hot-shot fuel which would increase jet velocities beyond those attainable with oxygen-alcohol mixtures.

At Wright Field, the Air Materiel Command's Engineering Division, desperately (*Continued on page* 71)

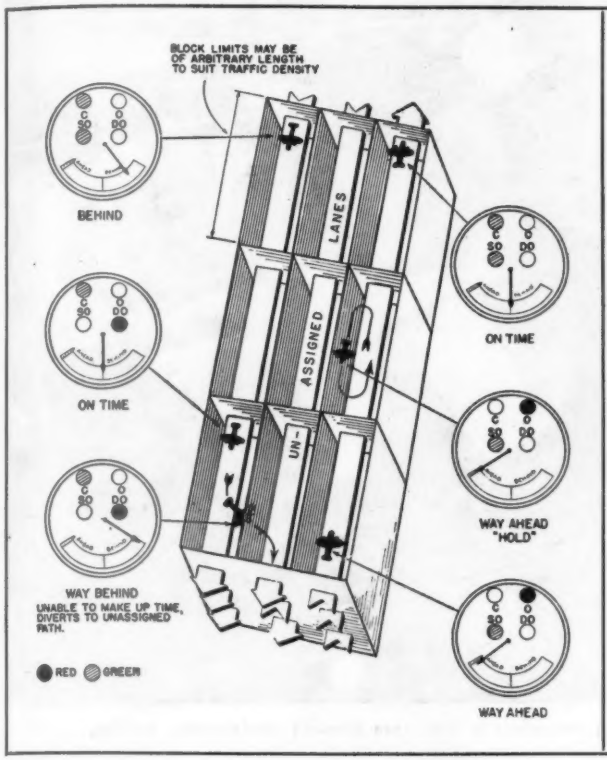


SUPER ROADS

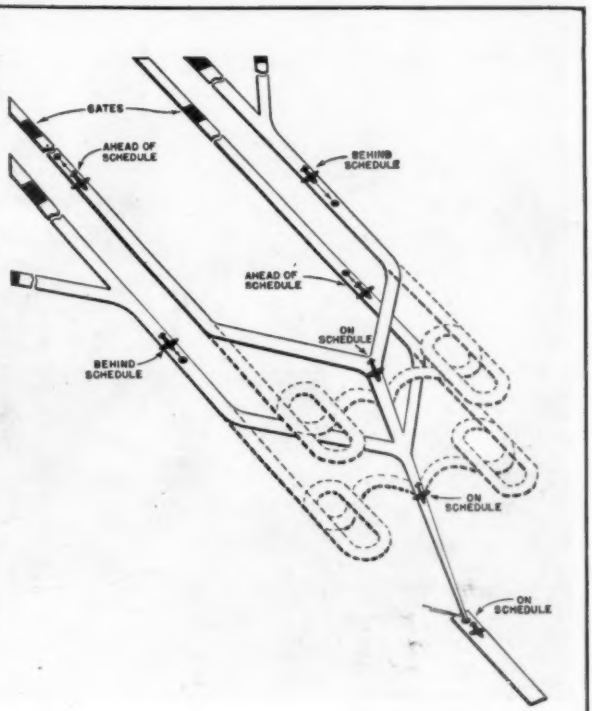


Proposed aerial highway between New York and Washington would have scores of channels in main trunk (see enlarged section). Express traffic by-passes cities where no stop is scheduled. Circular areas indicate radar surveillance where traffic is dense.

OF THE AIR



Block safety controls would space traffic on the "highway," with cockpit instrument lights showing whether next block is occupied.



Proposed "funnel" near airports channels all approaching planes into single lane in order to make maximum use of runway.

Air Transport Association proposes 140-lane "highway" system using block signals and radar traffic control.

By WILLIAM WELSH

GIANT MULTI-LANED aerial highways, policed by radar, may replace present national airways shortly after 1951. Planes in the not-too-distant future may speed along 140-channel super-highways, safeguarded by instruments showing their exact position at all times.

Blueprint for the revolutionary nationwide traffic system was drawn by the Air Transport Association, agency acting for major U. S. airlines. The Civil Aeronautics Administration has adopted part of ATA's recommendation. Plans are now underway to replace present low-frequency radio beams with ATA-backed omni-directional ranges. CAA Deputy Commissioner Charles I. Stanton says a two-year transition period will begin in 1949. If omni-ranges work satisfactorily, low-frequency (four-course, "A" and "N" quadrant) radio beams will be shut down on January 1, 1951.

That would be a victory for ATA planners, who have been bucking strong private plane opposition to omni-directional ranges. Lightplane flyers object to the new system because it requires new radio sets for almost every plane in the U. S. Their protests have not carried much weight thus far. Stanton's answer is that the new receivers and interpreting devices (required for omni-range operations) won't cost much. Within two years they'll be on the market, selling for not more than $250 and weighing only 25 pounds, he predicts.

But Stanton is dealing in speculation. At the present time, the nation's airlines are equipping their planes with omni-range receivers at a cost six times greater than he estimated. The CAA official says his figure is based on the prospect of mass production.

Proponents of the omni-directional range point to its potential utility to lightplane pilots. With the omni-range receiver, they say, the pilot knows his direction from the range station at all times. If practical, the system could be of particular advantage to the private pilot—who usually lands at fields off the existing range beams. Using the omni-range, the pilot could pick out even a good cow pasture and fly toward it with the positive indication of his track right in the cockpit with him.

The omni-directional range, however, is only part of ATA's proposal. Highways in (*Continued on page* 64)

Pleasant clubroom for pilot-members helps the hangar-flying atmosphere in Waukegan Airport's administration building.

The Waukegan Plan— ONE YEAR LATER

By CURTIS FULLER

Managing Editor of FLYING

TAKE it from Wayne Carpenter, it isn't the cost that keeps flyers away from the airport. The stocky red-headed owner of Waukegan, Ill., Airport has the records of 303 pilots to prove it. He recently ended 13 months of as unique an experiment with low-cost mass flying as this country has seen since post-war flying resumed.

There may be a lot of contributing reasons for people dropping out of flying but Carpenter's main conclusion is this: they just aren't interested enough.

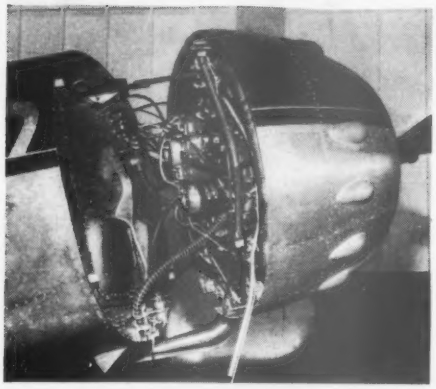
Carpenter's experiment began in the spring of 1946 when he organized a huge flying club—a club so large and with so unusual a plan that its members didn't suffer any of the usual restrictions of flying clubs. This story was told in the article, "Flying is Cheap in Waukegan," which was published in the September, 1946, issue of FLYING. At that time a promise was made that a follow-up article would be written on the results of Carpenter's unique flying club experiment.

His rates were sensationally low compared with the rates of other operators around Chicago—or most anywhere else for that matter. They started at $3.50 an hour for a 50-h.p. *Cub*, went to $4 for a 65-h.p. *Cub*, Aeronca, or Taylorcraft, $5 for an *Ercoupe* or a *Super Cruiser*, $8 for a Stinson *Voyager 150*.

Carpenter figured that the huge amount of flying such low rates should generate would make his plan pay off. He also figured that the club idea would level out his seasonal peaks and give him a more regular year-round income. It didn't do exactly that, as we shall explain, but Carpenter is irrepressible. He's already got a new club rolling with a completely new plan—and even lower rates. It's designed to remedy the weaknesses of the old club.

Last year's plan, called the Economy Flying Club, was strictly operator-sponsored. The airport handled all collections, memberships, administration, instruction and discipline. The airport also (*Continued on page* 82)

Businesslike management characterizes Waukegan Airport's flying clubs. Under old plan, club member checked in (above) and had choice of any plane on the line (upper right) that he was qualified to fly. Planes are carefully tied down outside with wheels securely chocked.



Hinged engine mount makes maintenance easy.

FLYING's CHECK PILOT

EDITOR'S NOTE

This series of articles is planned to help the pilot and prospective plane owner evaluate aircraft now on the market. Only aircraft holding a CAA Approved Type Certificate are flown. The author is not a professional test pilot. He evaluates each aircraft through the eyes of an average private pilot who flies an airplane either for business or sport.

THE Cessna 195

"ANYONE who can fly the 140 can solo the 195 within two or three hours."

That was my introduction to this interesting airplane by Derby Frye, assistant sales manager of Cessna. That assuring thought helped overcome my initial apprehension after getting my first look at the size of the 195, with its big 300-h.p. Jacobs engine.

It's been said that the 195 is a 1947 all-metal version of Cessna's famed pre-war *Airmaster*, and I think that's basically correct. But that's nothing to be on the defensive about; the old *Airmaster* was (and still is) one of the cleanest, best-performing personal planes in the air. The 195 should be a worthy successor.

To refer to the 195 as a "personal plane" is, for all practical purposes, incorrect. It's a small transport and is priced pretty well out of the true personal-plane market. The 195 lists at $13,750 f.a.f. Its 240-h.p. counterpart, the 190, lists for $12,750. Neither of these obviously is in the

Spacious baggage compartment carries 220 pounds. Two front seats move on rails. Step retracts when cabin door is closed.

Resembling pre-war Airmaster, the 195 is all-metal and has the larger 300-h.p. engine. Its cruising speed is 165 m.p.h.

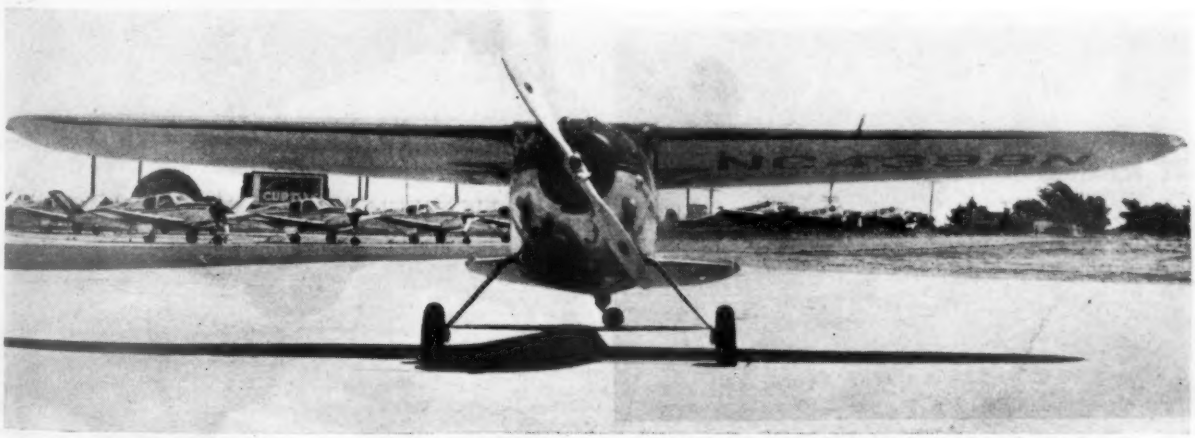
popular-priced field, although Cessna has a third four-placer, the 170, slated for the medium-priced field.

Externally, the 195 has a distinct relationship to the *Airmasters.* There is the high, cantilever wing, long tapering fuselage, big blunt nose and, of course, Cessna's very popular spring-steel landing gear. There's very little hardware sticking out in the breeze; the 195 is as clean as an airplane of this type could be.

Internally, the difference between the 195 and the *Airmasters* is more pronounced. The back seat is downright spacious; it can seat three people fairly comfortably. During the time I flew this airplane, Frye insisted I try the back seat. I was able to sprawl clear across the back of the cabin quite comfortably—and I'm 5 ft. 11 in. tall.

There is more headroom than there was in the earlier Cessnas, although there still is not an overabundance. To get into the front seats you bend your head a bit to clear the front spar of the wing; when sitting in either of the front seats you can rest your head on that spar. The two front seats sit up higher than the single back seat, which probably is the reason the spar seems low.

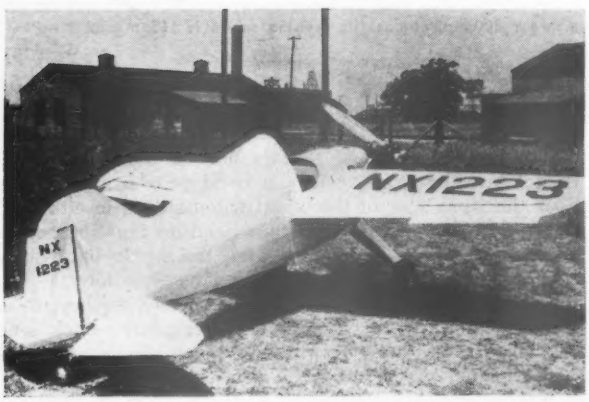
Cabin appointments are in excellent taste, as they must be in an airplane this expensive. Behind the back seat is a large shelf, beneath which is the baggage compartment (which holds 220 pounds). Cessna engineers hit on a novel gadget when design- (*Continued on page* 89)



Landing gear is so streamlined it cuts 195's cruising speed only two m.p.h. Wide tread gives excellent stability on ground.

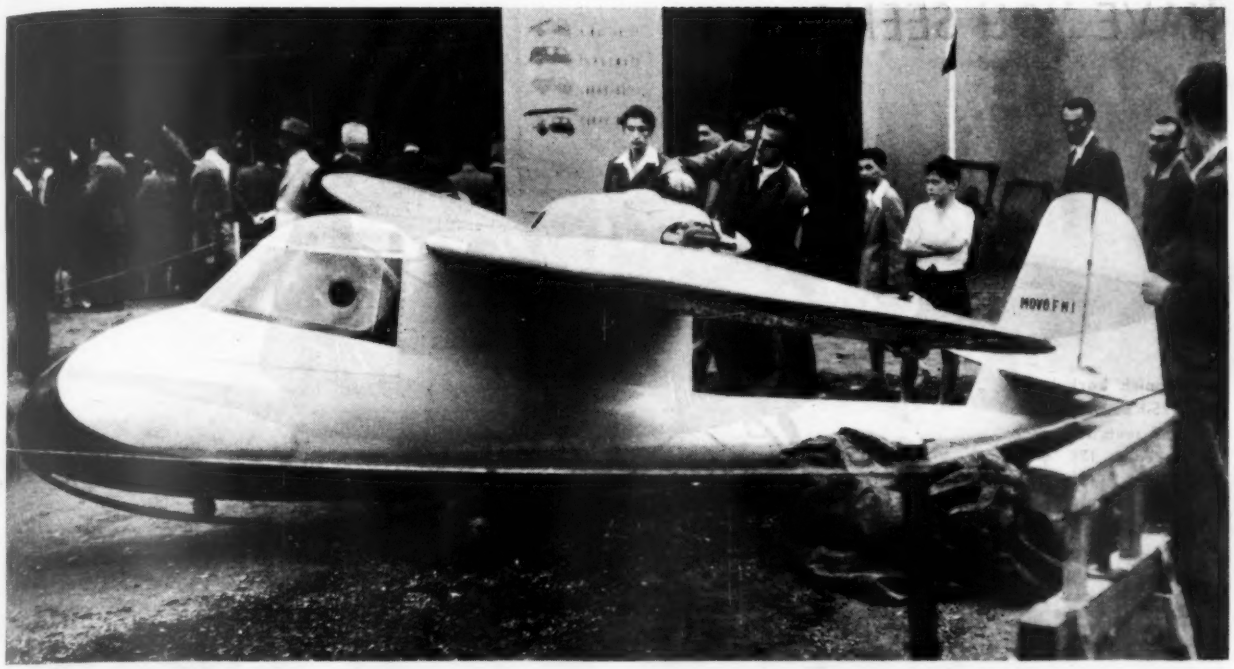
HAVE YOU SEEN?

Kellett XR-10, new AAF helicopter, has counter-rotating meshing rotors, two engines. It carries 12 and can cruise at 90 m.p.h.



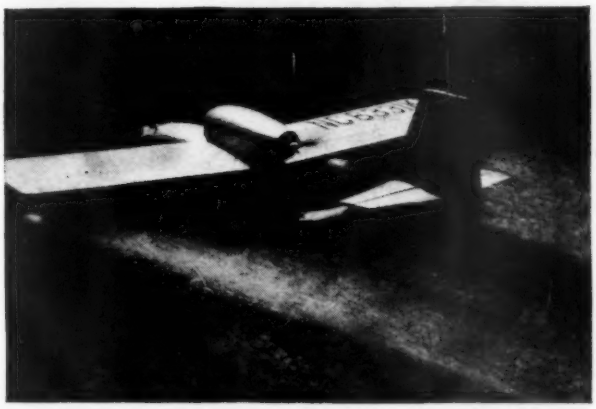
Hurlburt Hurricane, tiny racer owned by two Cleveland women, has 85 h.p., span of 16 feet. Top speed is estimated at 200 m.p.h.

Rough-water tests of Curtiss Seahawk (SC-2) included this kind of treatment. Despite landings like this, plane passed its tests.



Novel Italian lightplane displayed at recent fair at Milan, the Movo FM-1 has a 20-h.p. pusher air-cooled engine and carries only one person. Actually a small sailplane, the FM-1 flies at very low speeds. Weighs 270 lbs. Note skid under nose.

Falcon Special was designed by North Carolina pilots for racing. It has 85-h.p. engine and top speed of about 175 m.p.h. Wing span is 22 feet.



Seabee duster now in use in New York can carry 460 pounds of spray, cover 800 farm acres a day. Conversion takes 45 minutes.

Seaplane-launching dolly devised by Canadian firm acts as landing gear until plane becomes airborne, then rolls to a stop.

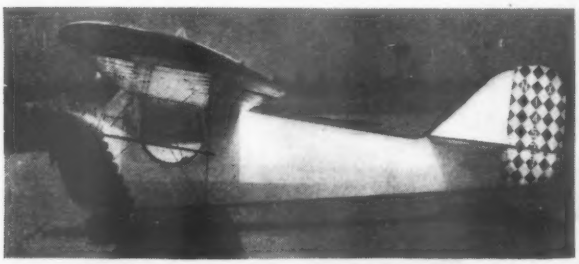
HAVE YOU SEEN?

continued

Danish Lark has a 125-h.p. U.S. engine and seats four. Top speed is 124, gross weight 1,910 pounds. Span is 31 ft. 6 in.

Four-place BT-13 carries two passengers in wide back seat and one in center under hatch. Special conversion kit sells for $275.

Rocket-firing P-80 has special nose housing automatic rocket gun which fires them in clips of six. Gas escapes from louvres.



Old Aeronca C-3 has been revamped by California pilot for stunting. It has 85 h.p. engine and a top speed of 110 m.p.h.

Navy rocket tests are being made with this PBJ (B-25) which has two revolver-type launchers in nose. The plane is shown firing five-inch rockets at the Inyokern, Calif., testing station. Emphasis is being placed on high-speed firing devices.

Can Flying Be Standardized?

By JOHN R. HOYT

IF YOU are practicing for your flight test, the chances are that your instructor will say to you, "The examiner wants stalls like this . . . but if you take your test from Examiner B, he'll want them this way. . . ." Yet all examiners are officially rated and are supposed to be standardized.

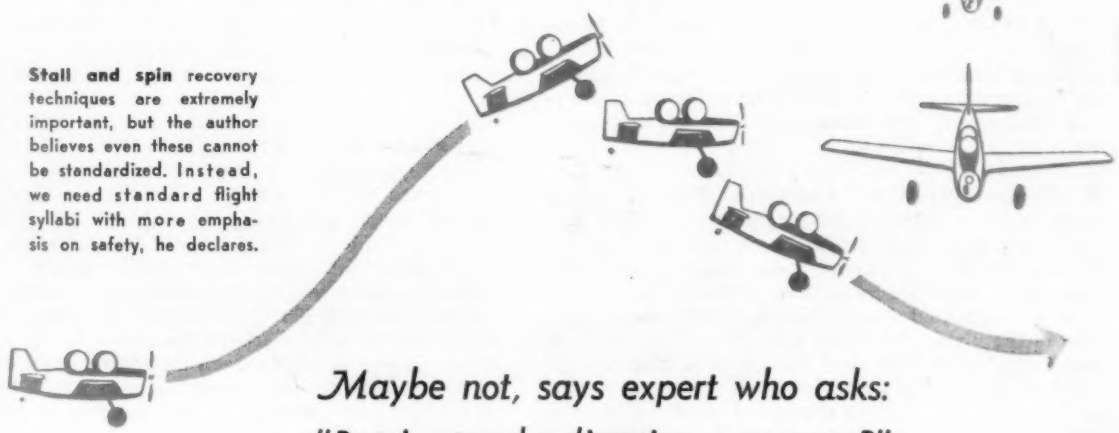
Or take the example of Student Jones, who was in the midst of his primary flight instruction and studying steep turns. Before he could take his flight test he moved to another part of the country where he again took up flying, but of course with a new instructor. Imagine his surprise and dismay when he found that the new instructor was teaching him to do a steep turn in a manner entirely different from the way he did them before! Yet both instructors had CAA ratings, were flight-checked by CAA inspectors, and had been "re-rated."

One would think that such a simple maneuver as the steep turn could always be done in the same manner. The pilot dips a wing, holds his altitude, co-ordinates the controls, makes two complete turns around the horizon, and brings the plane out on its original heading. Not difficult, yet somehow variations creep into the maneuver and so there are several ways of teaching steep turns. One instructor advises his students to watch only the nose; another teaches his students to watch the wing, while others lead with the ailerons and there are even some who advise holding the nose up with "top rudders."

Can flying be standardized? Perhaps that question isn't as important as the query, "Is standardization necessary?" After all, what is more important, to fly in a well-drilled manner, or to fly safely? Do we execute stalls, pylon eights, or spot landings after we have our pilot rating, or do we fly for pleasure—as a hobby and for relaxation?

Many attempts have been made to standardize flight maneuvers and flight instructors. In 1939-40, the CAA went to considerable expense and effort to standardize all CAA inspectors. Each inspector was thoroughly tested and many old fallacies officially blasted, (*Continued on page* 94)

Stall and spin recovery techniques are extremely important, but the author believes even these cannot be standardized. Instead, we need standard flight syllabi with more emphasis on safety, he declares.



Maybe not, says expert who asks:
"But is standardization necessary?"

I Learned About Flying From That! NO. 95

The author (right) with Estes Bryan in the Bonanza in which they made a stormy hop to Wichita.

By
BOB TULLY
Southern Air Services, Memphis

Good intentions can't beat bad weather, pilots learn.

IT WAS JUST a simple cross-country trip from Memphis, Tenn., to Wichita, Kans., in a *Bonanza*. With a record of hundreds of cross-countries—including eight complete circuits of the world in the Air Transport Command—I felt qualified to handle any situation that might arise.

But I learned a lesson about weather.

Weather reports predicted a minimum 2,000-foot ceiling and five miles visibility from Memphis to Wichita that March morning in 1947. Estes Bryan, chief mechanic of Southern Air Services, and I were eager to make the flight, though, so we took off at 6 a.m., ignoring the indication of a weak cold front aligned NE-SW across our course in the vicinity of Little Rock.

After cruising at 1,500 feet for about 35 minutes, we noticed the ceiling had come down and was covering the tops of the Ozark mountains ahead and on both sides. As I don't like to fly up mountain valleys in low overcasts, I pulled up on top of the clouds at 6,500 feet, but found I had to climb continually at a slow rate to stay above the cloud deck. Near Little Rock the cold front appeared weak, without towering cumulus clouds or other evidence of strong frontal activity. However, after 1 hr., 45 min. of flight we had been forced to climb to 16,500 feet. We cruised at that altitude for about 20 minutes, then went into the top of the clouds which were smooth with no turbulence or icing effects. After about 15 minutes of smooth instrument flying we decided to try for more altitude. We could feel the sun above us and thought we could break out of the top. Engine gauges showed 15 inches manifold pressure and 2,000 r.p.m., and the airplane was able to climb 700 f.p.m. with its light load. We broke out at 16,700 feet where we levelled off. At that point Estes felt severe effects from the altitude so I descended to 15,000 feet and went back on instruments again encountering no turbulence or icing conditions. Outside air temperature was approximately 18°.

Shortly after levelling off at (*Continued on page* 86)

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MORE AIRCRAFT LAND ON GOODYEAR TIRES THAN ON ANY OTHER KIND

AOPA NEWS

Aircraft Owners and Pilots Association is a service organization for the private pilot or aircraft owner. AOPA's full time staff is devoted to helping the individual pilot. Its aim is: "To make flying more useful, less expensive, safer and more fun." Headquarters are: 1319 F Street N.W., Washington 4, D. C. Members also receive a special AOPA edition of FLYING, newsletters and confidential aviation data. Opinions expressed in this column are not necessarily those of FLYING Magazine.

AOPA's early fall prediction: Lack of adequate navigational and landing systems will cause more aircraft accidents next winter than ever before.

The systems are available. That's not the trouble. CAA has shunted aside a simple and inexpensive landing aid. Ground Controlled Approach (GCA) has been investigated for months. Stacks of testimony have accumulated on the GCA versus ILS controversy. AOPA's general manager, J. B. Hartranft, Jr., has contended that GCA is the *only* approach system single-engine aircraft can use.

But T. P. Wright, CAA administrator, apparently holds another view. Wright recently commented that "CAA's ILS program is co-ordinated with interested Government and civil agencies."

Hartranft admitted that meetings (but with little "coordination") were held weekly by Government and civil groups in an attempt to work out a feasible landing and navigational system. The meetings have accomplished little. Navy, Army, airlines and AOPA disagree with CAA's stand. ILS is not the answer, they say. Navy tossed out its ILS systems last year, declaring them surplus because (1) they did not "fail safe" and (2) they were otherwise unsatisfactory. Army followed suit, making GCA its standard approach system last month.

Even in the face of this opposition to ILS, CAA recently asked for appropriations for 68 ILS systems and only 23 GCA sets. No ILS and two GCA installations were approved. The Hinshaw Congressional Committee stated bluntly: "Modern GCA should be installed at selected airports." How can CAA expect to receive appropriations when, by actual count of its requests, it favors only pet projects and resists installation of proved safety aids?

Wright himself has admitted that GCA has many advantages. Comparing the two landing systems, he said, "Cost of training pilots and maintaining their proficiency in ILS use is appreciable. No specialized training is necessary for GCA use. ILS requires airborne equipment (at least $400 worth). GCA requires no extra equipment and is suitable for smaller military aircraft."

Private planes were not mentioned. Hartranft commented: "CAA evidently does not class private planes as a segment of aviation—they speak only of 'smaller military aircraft.' What about the 90,000 private planes?"

In answer to the Hinshaw committee's report, Wright remarked that "GCA as the sole civil aid will not be dependable and consequently not as safe . . . repeated demonstrations have conclusively proved ILS satisfactory."

But the Army, Navy, private aviation and some airline groups have discarded ILS as *unsatisfactory*. Hartranft pointed out that AAF tests show an average fighter group with 805 total flying hours and no prior GCA landings were 350 per cent more accurate in their GCA landings than another group of AAF pilots (with 3,640 total hours and an average of 110 prior ILS approaches) were in their ILS landings.

As for the contention that ILS had proved its dependability over a number of years, Hartranft called attention to a recent ILS test flight. Three ILS installations were found so dangerous that occupants of the plane would have been killed had the ILS meter indications been followed. This was despite a two-week advance notice of the test.

Wright has said: "U. S. scheduled air carriers are equipped to use ILS, but few civilian aircraft are so equipped."

And that, in AOPA's opinion, is the crux of the situation. "Wright thereby admits CAA discrimination against private pilots," says Hartranft. "This matter involves the safety of *all* the flying public. Since ILS can serve only a mere fraction of the aircraft requiring safety aids, CAA's position is untenable. This issue must be met; GCA must replace ILS. The public has a right to this protection. Government bungling and boondoggling must no longer be tolerated."

LIGHTPLANE ACCIDENTS

CAB statistics show that pilot error caused 546 of 1947's first 1,000 lightplane accidents. Other accident causes listed by CAB were terrain (148), weather (127), powerplant (90), airframe (56), and miscellaneous reasons (33).

Landing-take-off-taxiing accidents led numerically with 453. Only two were fatal, however, and six serious. The 346 collisions with objects other than aircraft caused 29 fatal and 27 serious crashes. Stall-spin accidents, third in number with 116, accounted for 45 fatal and 17 serious crashes. And material failure caused 41—six fatal and two serious.

See table at the bottom of this page.

NEW EMBLEMS

Three-inch gold and enamel AOPA wings, similar to the ¾-inch regulation lapel wings, may be purchased by AOPA pilots for $2. The new emblems are pinback with a safety catch. AOPA numbers must be included with all orders for the new emblems.

FAI COMMITTEE MEETS

Simplified border-crossing procedure, possibilities for securing Western Hemisphere air touring manuals, and Inter-American flights were discussed at the first meeting of the Western Hemisphere Air Touring Survey Committee of the Federation Aeronautique International.

Lloyd R. Wilson, Jr., AOPA assistant general manager, represented the Association at the August meeting. END

Aircraft Accidents by Primary Cause—1947

(Initial 1,000 analyzed)

Type of Accident	Pilot Error	Other Personnel	Powerplant	Airframe	Weather	Terrain	Misc.	Undet.	Total	Fatal
Landing-Take-Off-Taxiing	204	5	41	19	89	91	4	.....	453	2
Collision—Two aircraft	22	.....	.....	1	.....	2	.....	.....	25	4
Collision—Objects	209	4	34	5	33	54	5	2	346	29
Stall-Spin	104	.....	5	1	5	.....	1	.....	116	45
Material failure	1	1	8	30	.....	1	.....	.....	41	6
Fire	.....	1	2	.....	.....	.....	.....	.....	3	.....
Propeller accident to persons	.....	6	.....	.....	.....	.....	.....	.....	6	1
Miscellaneous	4	1	.....	.....	.....	.....	2	.....	7	.....
Undetermined	2	.....	.....	.....	.....	.....	.....	1	3	3
Total	546	18	90	56	127	148	12	3	1,000	90

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Super Roads of the Air

(*Continued from page 51*)

the air, as foreseen by the Association, would be far different from present airways. They could handle domestic airline traffic on a scale hitherto unknown. But there's one major drawback—they are not for lightplane pilots. Road signs on ATA's radar-policed highways would read, "For Airline Traffic Only."

Channels in the air, not just one "highway" between two points but many, separated laterally and vertically, will, if engineered according to the recent proposal, have just this one objective:

Move more airliners safely, without interference from lightplanes.

The highway plan calls for seven lanes with 20 altitudes to each lane between two terminals. Lateral separation for each of the lanes is eight miles, the outermost lane being 24 miles from the center one, which is on the center of the existing airway. Vertical separation is 1,000 feet.

Thus the seven lanes of 20 altitudes each provide 140 aircraft channels. Time separations of 10 minutes, as now employed with just one airway, would open the way for a multiple number of flights between stations.

Numbering the proposed highways one to seven, left to right, traffic would flow in the following manner:

Over lanes one and five, all altitudes, airliners and cargo planes would fly in one direction. Over lanes three and seven, all altitudes, they would move in the opposite direction. Lanes two and six would be unassigned and reserved for planes falling behind on schedule with the flow of traffic alternating direction with each altitude. Lane four, the center lane, would be reserved for high-speed airplanes with navigation receiver at upper altitudes, and *for lightplanes only at the first 2,000 feet.*

If you're a lightplane pilot, you don't need a flashlight to see where you would fit into this picture. You would have access to just two of the 140 slots. Those are terrific odds, considering that there are now 30,000 private planes equipped to fly instruments in comparison with less than 800 transport craft.

ATA says that's the way it has to be. "Highways" aren't possible without the use of bulky, expensive electronics gear. Only those planes able to carry the equipment can make use of the highway facility. Others, equipped with no more than a two-way radio, would have to stay on the existing airway beam.

CAA Deputy Administrator Stanton solves the controversy by pointing out that when ATA has all the necessary gear for its proposal, the plan will not infringe on lesser-equipped private planes.

"The multi-channel (highway) system will not be in effect up to altitudes at which private pilots usually navigate," Stanton says. Airliners, which are capable of doing so, will have to fly above the vertical area needed to allow private instrument flights to be made, he states.

This means that CAA will not allow the restricted highway plan to be in effect at those lower altitudes in which 1,000-foot vertical separation for private planes is necessary to allow them to make cross-country flights. The altitude at which the highways will start will not be consistent throughout the nation. A survey of instrument flights by private planes will be made to indicate how much vertical area private pilots will need in any particular locality.

These problems remain to be solved. The private pilot's place in the overall picture is, obviously, not yet clearly defined. As for the airlines, future operations procedure is specifically planned:

The 140 channels or air highways are further subdivided into blocks, as if they had dividing walls at arbitrary intervals cutting them into segments.

Suppose you are an airline pilot. Your destination is 250 miles away. You file a flight plan, estimating an arrival time not only for your destination but for each of four dividing walls, in this case 50 miles apart—and for an approach gate, 10 miles from your destination.

You take off. Along the way you will fly at one specific altitude over one specific track through these equi-distant blocks of air. Blocks vary in length according to the traffic generally flown between the two points.

To enter or depart through each block without change of flight plan you must pass through the block gates within one minute, plus or minus, of the time you estimated at take-off.

Nearing your destination, leeway on either side of your estimated time is cut to 30 seconds, plus or minus. If you are running fast, you must slow down by reducing your speed or circling. If you are slow, you must move to another "unreserved" highway at a different altitude and laterally separate from your former track. Having made such a move you must wait for the Airway Traffic Control center at your destination to give you, by radio, a new time for passing through the approach gate.

Once through the approach gate, you fly straight into a landing. If you miss on your final approach, the system calls for a special pull-up and holding procedure till you are able to get back down.

You pull up and out to the left and fly in a left-hand pattern at an altitude which keeps you clear of other incoming planes. When ATC feels you can let down and not interrupt the flow of traffic, you make the normal approach to the field.

Very simple, isn't it? So long as you fly at the speed you estimate before take-off and don't foul up on approach at the destination, you're in like Flynn.

Simplicity of the system stems from the fact that it was created with the existing pattern as a foundation. Now, you fly the radio range beam on the right side (twilight, that is) at whatever altitude is clear at the time of take-off. You don't get any time checks en route with the exception of checks over intermittent radio range stations. When you get to your destina-

MODERN CIRCUS

SOMETHING new in trapeze acts is the aerial show put on by Marilyn Rich, professional performer, from a set of rings hung below a helicopter piloted by Knute Flint, San Fernando, Calif. The act was presented in the Pasadena Rose Bowl at the annual July Fourth Fireman's benefit show and was witnessed by 60,000 persons. It was insured by Lloyds of London at the rate of $300 per hour. The craft itself, a two-place Bell helicopter, was flown into the Rose Bowl from Whiteman's Air Park in San Fernando. After the act, the helicopter was flown back to Whiteman's.

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GETS THERE ON TIME . . . LANDS ON A DIME

tion, you don't fly straight in (as you will with the radar-guided "highway" system); instead, you have to wait your turn to fly your way down on the radio range.

The new navigation proposal applies numerous electronics devices and more exact correlation. Radar and block-signals are its heart. Radar is for close-in guidance, and the block-signal system determines the plane's progress at greater than line-of-sight distance from the destination.

The new system is not, of course, ready to go, but work on it is progressing. Under the direction and cooperation of American Airlines, the General Railway Signal Company is working on a block-signal unit which it feels will soon perform adequately.

But even when the block-signals are available, they will probably be useless to lightplanes for cost and weight reasons. Airlines officials are aware of this. They are also aware that the entire highway system which they propose has little place for the private pilot.

The block-signal system alone requires an additional instrument in the plane to determine, from signals of ground stations at the end of each block, whether the plane is slow or fast and whether the next block of air is available. Further, you've got to have an electronic device to outline the flight path. Such a device, ATA says, will be a combination of the omni-range, distance-measuring aid, and mechanical navigation computer — all of them weighty and costly objects.

To lightplane protests an ATA engineer says:

"On our public roads we have the same problem. In many cities you have lanes for the slow, rough-riding trucks, and lanes for the fast, smooth-riding cars. The lanes for the autos are better and afford faster service to the driver than those which the truck driver is forced to use."

From this he draws a parallel: Airliners, equipped with gear adequate for use of the laterally-separated highways of the air, are comparable to the smooth-riding autos. Slow, less-equipped private planes are like the cumbersome trucks. These, then, are the planes that get the short end of ATA's proposal.

"As for tractors with their cleats that tear up the streets, we don't even allow them to take to a paved road." By the same token, unequipped planes must stay off the airways. Their interference with other planes would be an infringement on the right to fly.

By establishing the block-signal system and the laterally separated highways, ATA hopes to move air traffic at a speed never before attained.

But if you aren't flying an adequately-equipped plane, your place in the cross-country flying picture is along the edge.

ATA uses the New York area as an example. The three major airports are La Guardia, Newark and Idlewild. To you, having no more than a two-way radio, these fields would be restricted. Not only that, but you would have to stay out of the "danger" area of the intensive traffic at the three landing points. With luck, you would get to land at Roosevelt or Caldwell Wright fields. Most likely, however, you will have to land at Westchester or Trenton, 40 or 50 miles from Manhattan.

It is easy to understand that this highway proposal would heap traffic worries on the New York ATC such as it has never known before. Counting on La Guardia, Idlewild and Newark handling 30, 50 and 20 per cent respectively of the traffic, ATA figures 1,200 aircraft can be moved in and out of New York each day.

This would necessitate supplementing existing control measures. ATA proposes that the Air Traffic Control center at a traffic converging spot have more positive knowledge of aircraft movement through additional radar. The airline agency suggests that automatic interpretation of a plane's track be available. This would call for an airborne reporting device and a ground interpreting device—both of radar.

Such interpretation would enable the ground traffic controller to warn a pilot of his danger when drifting off the path which he was flying to a safe landing. This is an intricate part of the close-in procedure connected with ATA's highway proposal.

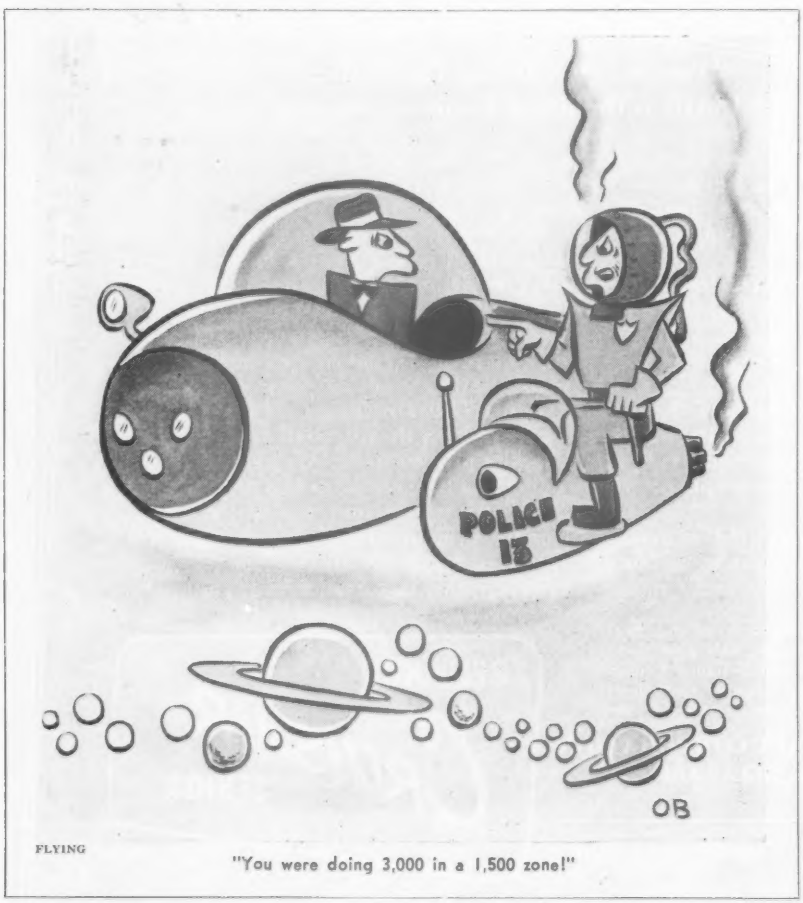
Naturally, the proposed 140 slots on any one of four or five airways converging at a terminal do not each have a separate approach channel. In the New York area, where four airways intersect, ATA engineers have worked out 20 approach and 20 departure lanes. These lanes will be separated by at least 1,000 feet vertically or three miles laterally. That's 40 lanes to take care of traffic from 560 slots. It's easy to see that greatest care will be necessary to control this converging traffic.

The whole scheme is still not sold so far as the private pilots are concerned, however. Particularly strong in opposition to the omni-directional unit has been the Aircraft Owners and Pilots Association. AOPA's president, J. B. Hartranft, Jr., protested the installation of the omni-ranges before a Congressional committee investigating air safety measures.

Instead of the VHF units, Hartranft suggested to the Congressmen that the omni-directional program be delayed until ". . . (1) reasonable evidence has been introduced to assure non-scheduled flyers that the proper airborne equipment is actually available at a reasonable cost for private aircraft or (2) until plans have been modified to install two- or four-course ranges in lieu of the omni-directional VHF ranges."

In contrast to CAA Deputy Administrator Stanton's optimism, Hartranft contended that an AOPA survey of radio equipment manufacturers indicated that VHF omni-directional ranges for private pilots are "five years and $700 away."

But this protest has had little effect. Omni-directional ranges are being installed. If the airlines can advance an equally-acceptable device in the block-signal chain, they may soon have their highway system. END



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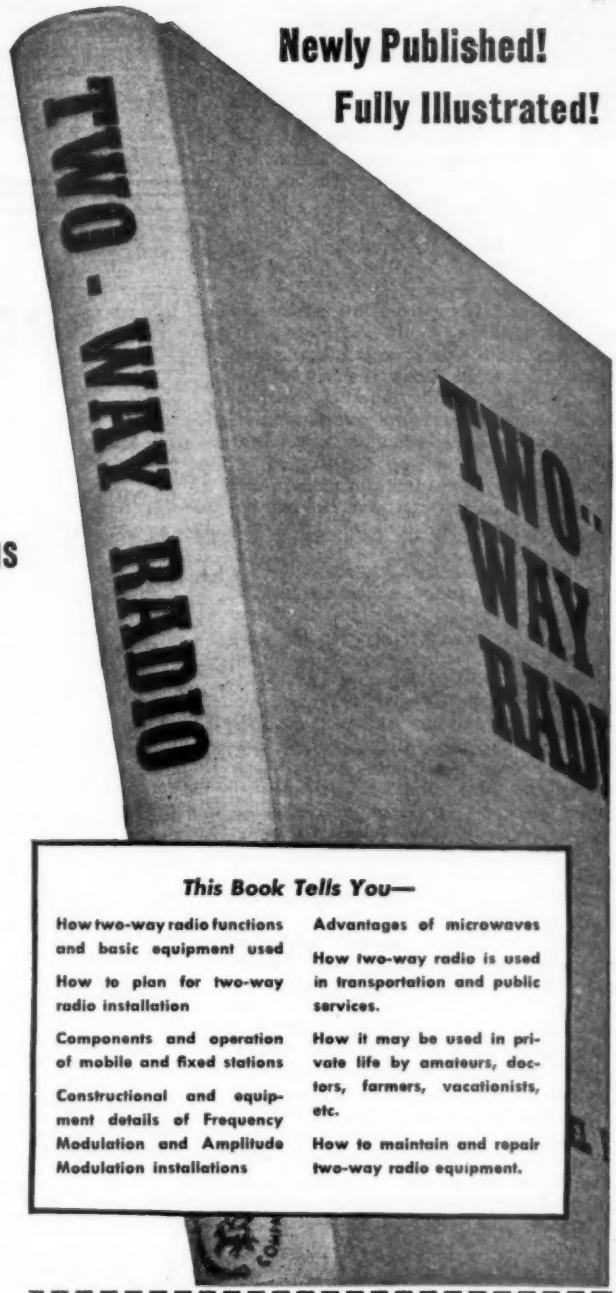

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San Juan Islands

(*Continued from page 30*)

of a nearby cove. They circled Matia Island several times before landing at a small cove on the southern tip.

There they beached their plane and spent the morning climbing over the rugged little island. They climbed slippery shale cliffs for a view, waded through underbrush to admire windswept firs and gnarled madronas, and later hunted for agates on the beach.

After lunch they took long sticks and pried starfish and multi-colored sea cucumbers from the rocks. Loretta suggested they explore the other coves—and in one of them they found a weather-beaten abandoned house, with no indication of who its inhabitants were, or why they had lived on the tiny bit of land. So busy were the two modern-day explorers that the sun was sinking before they began to think of the return trip.

The Luscombe's gas gauge showed more than a quarter full, but because a wind had blown up Jerry decided to fly to nearby Friday Harbor for additional gas. They picked up 10 gallons of 80 octane for $2.65 at Friday Harbor, and sat down in Seattle's Lake Union at 5:30 p.m., exactly nine hours after taking off on their flying holiday. Total flying time for the trip was only 3½ hours. For a plane owner, cost of a similar trip is surprisingly low. If, like Jerry, you have to rent a plane, the costs shoot up slightly. Because Jerry was a regular customer at Seattle Seaplane Service, he got a special rate of $30 for the day. Otherwise the tariff is $9 per hour.

Jerry and Loretta weren't interested in typical resort country. They wanted something with a touch of the unusual—and they found it at Matia. But the San Juan Island group contains a little of everything for the aerial tourist. The islands themselves, with their romantic Spanish names, are intriguing for those who have an interest in history.

Early day explorers cruised through the islands, charting some of them and giving them names, such as Rosario Strait, Sucia, Patos, Fidalgo islands, and Padilla Bay. Capt. George Vancouver renamed the islands in 1792 as did Capt. Charles Wilkes of the U. S. Navy when he passed through in 1841. Most of the names, however, retain their Spanish origin.

San Juan Island, one of the largest in the archipelago, was the scene of the famous "Pig War" in 1859. The United States and Britain at that time had a long-standing dispute over possession of the islands. When an irate American shot a British settler's pig, the affair was brought to a head—and war was almost imminent. The dispute was finally arbitrated, possession of the island chain was awarded the United States — and the "war" was ended.

Friday Harbor, county seat of San Juan Island, is a progressive village of 800 persons and is located on a deep water bay on the island's east side. The town is a United States port of entry and has a Coast Guard station, nearby shipyards, and well-protected moorings for the yachtsman and seaplane flyer. The University of Washington's Oceanographic Laboratory, where students and faculty conduct field research on Puget Sound marine life, is one of the few laboratories of this type in the world. Just off the shore of San Juan Island are world-famous salmon banks, and thousands of cases of salmon are packed annually at Friday Harbor. The king salmon is in abundance on the banks, and boats and tackle are available at Friday Harbor.

The island's temperate climate encourages farming. The hinterland is filled with sheep and cattle ranches and with small dairy and poultry farms. As a whole, the islands have less rainfall and more sunshine than Seattle and other coastal cities. So little rain falls on some of the eastern islands that several varieties of cactus have been found growing in the sandy soil.

San Juan's 150 miles of hard surfaced and gravel roads include marine drives with unusual views of Mount Baker, Mount Rainier, the Canadian Islands, and the Olympic Mountains.

Orcas Island, largest of the group, is dotted with vacation resorts and has the best beaches for swimming. Its shoreline is deeply indented by scores of well-sheltered bays and coves, affording ideal resort locations. Near the island are many islets, fascinating because of peculiar geologic formation and seabird rookeries.

At Deer Harbor on the southwest tip, Norton Inn has a float where seaplanes can moor. Circle the resort and race your motor and someone from the resort will come down and help you tie up. Norton's features home-cooked food, and a special recipe for chicken. Rates are from $30 to $40 per week for room and board.

Post offices, steamboat landings and well-stocked general merchandise stores are located at Orcas, Eastsound, Westsound, Deer Harbor, Olga, and Doe Bay. Automobile ferries from Anacortes and Sidney, near Victoria, B. C., connect Orcas Island highways with the mainland and nearby islands. Smaller passenger and mail boats ply between Seattle, Bellingham and the various islands.

The island has several lakes, including Cascade Lake, less than half a mile inland and 350 feet above tidewater, and Mountain Lake at an elevation of over 1,200 feet. Deer, pheasants and quail abound.

Mount Constitution's 2,400-foot summit is easily reached by a highway and affords a spectacular marine view: hundreds of miles of island-dotted waters extending in every direction, and Mount Baker rearing above the jagged line of the Cascade range to the east. Other peaks on the island include 1,200-foot Mount Entrance near Olga and 1,497-foot Turtleback Mountain near West Sound.

Orcas is famous not only for fresh water fishing but for its salmon waters. The northeast shore of the island from North Beach to Point Lawrence and south toward Doe Bay is one of the finest salmon fishing grounds in Puget Sound. And the west shore north from Deer Harbor, East Sound Bay, and—to a lesser degree—the entire coast line of Orcas Island, attracts thousands of fishermen both in winter and summer. New fishing resorts have sprung up along the Orcas coast to accommodate increasing numbers of fishermen.

Orcas has two landing areas in addition to the Norton dock. At Eastsound on the north end of the island, the Orcas Island Airport has a north-south 2,300-foot gravel runway. Gas and oil are avail-

15 YEARS AGO

FROM the October, 1932, issue of this magazine:

A new lightweight bomber, the Martin XB-907, was tested by the AAF. It had a metal, monocoque fuselage, retractable landing gear, and its two radial Wright engines were mounted in front of the wings close to the fuselage. This arrangement provided better vision since the front cockpit was placed well forward of the wings.

Capt. Rene Fonck, a French war ace, invented a light control mechanism for attacking night bombers. It consisted of a powerful focusing searchlight mounted on each side of a fighter plane and synchronized with the four machine guns so that the bullets struck exactly in the center of the beam of light.

In an article entitled "Whither Is Speed Leading Us?," the author, Charles W. Purcell, debunks the idea of planes ever attaining a speed of 1,500 to 2,000 m.p.h. He predicted that commercial planes will never carry passengers at more than 250 m.p.h. because "only two out of each 10 persons can stand a speed greater than 300 m.p.h."

A huge six-engined flying boat was built by Short Brothers Seaplane Works, Rochester, England, with a span of 120 feet, length 89 feet, and weight 70,000 pounds. It was so large that it was launched on a slipway just like other large marine craft. The boat-shaped engine nacelles were mounted on turrets of novel design.

England had developed a huge troop carrier plane called the Gloster Bomber-Transport for use in the Far East. A biplane with Handley-Page wing slots, it could carry 30 men with baggage and equipment.

Largest German plane was the new Junkers D-2500 flown on the Berlin-Amsterdam-London line. A monoplane with a biplane tail, the D-2500 carried 34 passengers comfortably seated so they had a good view above the wing surface. It was powered by four Junkers L-88 engines.

Lear Developments, Inc., Chicago, designed a new aircraft radio set for private planes. The small receiving set weighed only seven pounds, got weather reports, radio beacon signals and broadcasts on waves ranging from 235 to 720 kilocycles with a single control and without the necessity of changing coils.

"AOPA... I wish to commend you on the very wonderful job you are doing"

BRADFORD W. PEARSON, AOPA Member Pilot No. 33789, writes: "I enjoy being a member of this very fine organization and wish to commend you on the very wonderful job you are doing in helping the aircraft pilot and airplane owner. Much success to the AOPA!"

There is a constant flow of letters like this to AOPA headquarters. Letters of approval; thank-you letters for personal services; letters with suggestions for improving and expanding our activities. They show that AOPA is on the right track; that its members are keenly aware of the problems to be solved and the issues involved in the full development of personal flying.

If you own or fly a plane you owe it to yourself to become a member of this great brotherhood of flyers. The whole purpose of AOPA is to provide a united voice for all owners and pilots; to protect the interests of personal aviation; to make private flying safer, less expensive, and more enjoyable.

AOPA is the largest organization of its kind in the world. It is nonprofit and international, and includes on its list of sponsors many of the influential leaders in private flying. In addition to its great 21-point long-range program AOPA offers many free services and benefits to members, listed below. Annual dues are only $5.00, and if you own or fly a plane you are eligible for membership and are invited to join. There is a convenient application form on this page; why not mail it today?

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CONVENIENT AIR BASES IN SAN JUANS

Base	Island	Nearest Town	Runways or Docks	Length	Facilities
Orcas Isl. Airport	Orcas	Eastsound, ½ mile	one gravel runway, N-S	2,300′	Gas, oil, storage, hangars
Orcas Base	Orcas	Orcas	small float east of ferry landing in town's center		Gas, oil, limited moorage
Norton's Inn	Orcas	Deer Harbor	dock at Deer Harbor		Gas, oil
Friday Harbor	San Juan	Friday Harbor	Union Oil Co. dock		Gas, oil
Isleacres	Waldron	at Isleacres Resort	one runway, seaplane facilities	2,000′	Gas, oil
Anacortes	Mainland	downtown Anacortes	float at end of dock		Gas, oil

able and the flyer can rent storage and hangar space. The field, owned by R. B. Ferris, is a half mile north of the community of Eastsound. At the town of Orcas, a small seaplane float is located just east of the ferry dock in the center of the town. Gas and oil and limited moorage facilities are available.

Smaller Lopez Island has four main resorts. The Double E resort, Lopez Inn, Sunset Beach Farm, and Sunset Lodge feature fishing and hunting in season.

Private pilots in the Northwest are beginning to realize that a comparatively unknown vacationland lies at their front door. Up to this time, facilities for private pilots have been few. Now, gas and mooring for seaplanes are available at Friday Harbor where Island Airways have a commercial operation base. Seaplanes tie up to the Union Oil Company dock. Waldron Island in the far northwest fringe of the San Juans offers a harbinger of things to come. Isleacres Resort on Waldron has a 2,000-foot runway as well as facilities for seaplanes. Aviation gasoline is available, but not repair service. There are comfortable cabins, excellent food, and a cabin cruiser for special fishing parties and daily cruises among the islands. Rates here are in line with other San Juan resorts, and private planes are not charged a moorage fee.

Work is underway on a seaplane base at Anacortes, Wash., a 15-minute hop from the islands. Moorage at the dock is available now and gasoline and repair service will be available in the immediate future. The island group, proud of its reputation as a yachting rendezvous, is making a bid as a haven for private flyers.

The larger islands have more than 30 resorts. Using the five island bases or the dock at Anacortes, the lightplane traveler can explore any of the islands in the group.

A special committee, headed by Ray Howard of Seattle, has chosen several additional spots in the San Juan Islands for seaplane bases in connection with a general program for location of seaplane moorages at strategic northwest spots. These bases are still in the planning stage but probably will be built in the near future.

Seattle has a number of ports for seaplanes. Kurtzer Seaplane Service and Sky Harbor, a seaplane base, are both located at the southwest corner of Lake Union, almost in the heart of downtown Seattle. They have all facilities for the private flyer. At the north end of Lake Washington at Kenmore, a scant five miles from Seattle, is Kenmore Air Harbor, Inc. This establishment provides full maintenance for all types of seaplanes. Seattle Seaplane Service on the east side of Lake Union is also a fully-equipped seaplane base.

At major resorts on each of the main islands rates vary from $3 to $5 a day for rooms, and $5 to $7 a day for housekeeping cabins. Meals are served a la carte from 50 cents to $2. Weekly rates for board and room vary from $30 to $40. Other resorts furnish cabins equipped for light housekeeping, except for linens, for $25 a week and up. Boats and fishing equipment either are furnished or can be rented. More pretentious resorts offer guide service and a round of entertainment.

Incidentally, the major hunting season opens in October in the San Juans. Season on deer, pheasant and quail is from October 12 to 29; and on duck from October 21 to November 3 and from December 16 to December 29. Bandtailed pigeon are open the month of September, and rabbit hunting is open the year round on Government land or at the discretion of property owners.

All lakes in the San Juans (with the exception of Cascade and Mountain) are open from April 20 to November 30, and streams from May 25 to October 31. Cascade Lake on Orcas Island has a freshwater fishing season extending from April 20 to September 1. Mountain Lake, also on Orcas, is open from April 20 to October 31, but the lake is restricted for flyfishing only during September and October.

The San Juans are your dish if you're looking for some of the world's finest salmon fishing, or for excellent deer, pheasant, rabbit and duck hunting in season. The islands are equally attractive to the flying tourist who only wants to hike up a leafy trail, ride horseback, dig for clams, hunt for crabs, swim—or just lie in the sun. And there are scores of tiny isolated islands.

In years to come San Juan Islands may develop into a community of homes for flying commuters from Seattle. Today it is rapidly becoming a famous Northwest flying vacationland—right at Seattle's doorstep. END

NEWEST GRASSHOPPER

LOOKING like a giant dragonfly, Boeing's unconventional XL-15 can hover at speeds less than 50 m.p.h. with fullspan, fully-extended flaps. As the YL-15, it will be tested for Ground Forces liaison work. Its "gondola" fuselage and inverted tail surfaces are intended to help it take off and clear a 50-foot obstacle in 600 feet. The all-metal, highwing monoplane, powered by a 125-h.p. Lycoming engine, is designed to climb at 628 f.p.m., cruise at 101 m.p.h., and land at 35 m.p.h. Observer sits behind the pilot in a full-swiveling seat with a 360° field of vision.

The Push-Button War Fable

(*Continued from page* 49)

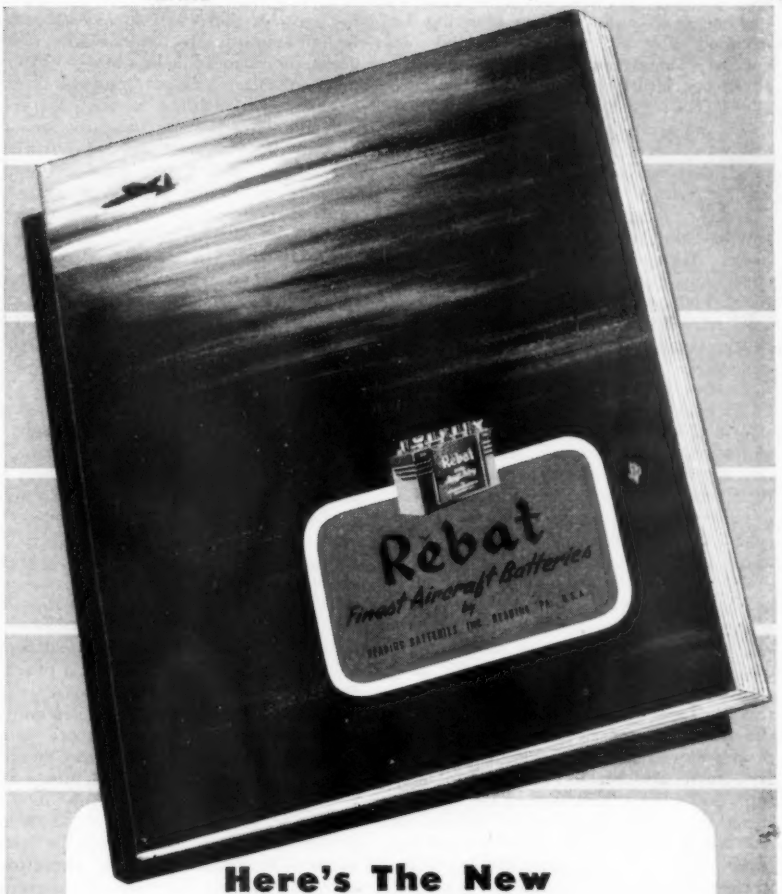
short on men, money, and facilities (only $80,000,000—less than the cost of a single battleship, is available for the guided missile program, both Army and Navy), is swamped by the testing and development of major items for both aircraft and missiles. AAF plans for an adequate Air Engineering Center would require an outlay of $600,000,000. There, equipment would be needed for testing jet propulsion systems, heat transfer and isolation, combustion chambers, nuclear fission phenomena, and the development of nuclear energy fuels for rockets.

As with any aircraft, getting a missile from here to there involves power plant, guidance, and control. Probably the most far-reaching endeavor is the primary contract with Fairchild Engine and Airplane Corporation for the development of an atomic-powered engine. Administered by Fairchild, this contract includes the Manhattan Engineering District and various aircraft manufacturers. Talk is of using the heat-generating properties of the pile to drive, for example, a turbine—possibly steam. The extreme weight of the necessary shielding would require a very large aircraft and much thought will be given to increasing the efficiency of the pile so that a smaller pile can be used. That longer-ranged missiles require atomic energy or at least better power sources is evident from the fact that 10 tons of alcohol and liquid oxygen give the V-2 a power run of a little over a minute, during which time it gains altitude and speed to coast to an objective about 180 miles away. Alcohol and oxygen fuels can expand only so much per unit of combustible mixture.

While the liquid-fuel rocket holds the limelight, the ramjet also has excellent possibilities. Though it depends on an outside source of oxygen, namely the atmosphere, it functions effectively up to 50,000 feet and has proved capable of 1,500 m.p.h., a speed comparable to a bullet. It need not have wings.

Guidance is hardly less a problem than atomic power. Pre-set missiles, such as V-2, sometimes are not considered true guided missiles for, though they obey their own controls, their flight path cannot be altered by outside means. Of future significance is the target-seeking family, which employ television scanning, heat and light-seeking heads, or radar heads. *Bat*, which can be directed into a target at ranges up to 20 miles, remains the best example of a target seeker. Then there are command-type missiles, controllable by radio and other methods, such as the B-17 drones that flew through the Bikini cloud; and course-seeking missiles that follow a beam of light or radio energy. Various combinations of these methods of guidance can be employed simultaneously on all classes of missiles: air-to-air, air-to-surface, surface-to-surface, surface-to-air. But there are limitations with all of these combinations.

A beam has restricted range and broad-



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ens and fades with distance, affecting the missile's ability to stay precisely on course. Various methods are susceptible to enemy interference. The tactical use of a target-seeker is limited by its ability to choose a military target when offered alternate targets, such as a mountain, or to distinguish between friend and foe among many choices.

Since it would burn fuel at a prodigious rate, a ramjet interceptor missile would have to be directed during climb for best speed and altitude to assure economical fuel consumption and maximum range. This could require a number of changes in trajectory, involving a constant knowledge of the missile's whereabouts and actions, and of the whereabouts and actions of the enemy. If large numbers of missiles are launched, extensive ground installations, equipment, and crews will be necessary. If an enemy rocket, rather than a bomber, was to be intercepted the defending missile would have to have a speed considerably in excess of 5,000 m.p.h.

V-2 is an excellent example of the difficulties of control. To all intents and purposes simply a long-ranged shell, it is too big to be launched from a rail or ramp and must begin its flight vertically at a rate of acceleration barely visible during the first few seconds. Carbon vanes in the fiery exhaust stream resist any improper movement of the missile while the fuel burns and the fins and control surfaces guide the missile during the descent. In its one-minute power flight, V-2 had to assume gradually a 45° angle toward the target, an angle that had to be precise in elevation and azimuth. Power was shut off the instant the proper speed had been attained. The power run is, in effect, nothing more than a 20-mile-long gun barrel.

Nor could the V-2 be permitted to roll in flight. If the set of surfaces that controlled azimuth affected elevation, or vice versa, there would be hell to pay. Internal mechanism must detect tiny beginnings of a change in attitude so that corrective movements of the controls resist any displacement. Any control movements in the usual sense would produce an impossible oscillation and violent loss of control. For such reasons that a gyro is never free of drift, that the atmosphere is highly variable, that the effects of the controls vary with speeds and atmosphere, such a missile cannot be accurate over a long range. Any long-ranged descendant of V-2 probably would be directed to a general area, perhaps by star guidance or some other system and then, with the help of an undetermined type of seeking fuse, plunge into the target.

Gifford White, Special Weapons Research Engineer, Sperry Gyroscope Company, Inc., says this of control: "Solutions to these problems can be demonstrated in some cases. To bring them together into a co-operative system even on a proving ground basis will demand tremendous efforts. To arrive at a system that will function at any hour, day, and year selected by an unknown and unsuspected enemy is beyond the grasp of a practical engineer's imagination."

Investigation of cosmic rays is another preparatory step for the future rocket program. It is being carried out by many independent agencies and universities with the support of the Army and the Navy. At lower levels up to 45,000 feet studies are made with specially instrumented *Superfortress* flying laboratories; at higher levels by placing instrument heads on V-2's. Firings of these special V-2's are few and far between.

The first such V-2 crashed in August, 1946. The next, fired on November 26, contained a special head to check the effects of the ionosphere on radio and to measure the skin temperatures of the rockets. The 20th of the V-2's, equipped with special instruments and cameras for the study of ionosphere and solar radiations, was fired February 20. This was the third V-2 fired that contained instruments made by the Watson Laboratories, of Cambridge, Mass. This same flight introduced the revolutionary ribbon chutes which lower delicate instruments intact from heights above 100,000 feet. Above that height parachutes should not be necessary until heavier air is reached.

Previously, telemetering, a relatively inaccurate and far more costly system (since the instruments were smashed) was relied upon. On March 7, another V-2, carrying a box of fruit flies, soared to 300,000 feet. Ejected at the top of the flight by a mortar grenade, this box was lowered by chute. Purpose was to observe the effects of supersonic speeds, high temperatures, and cosmic radiations. Pointing up the acute need for high-speed tunnels was the flight of a V-2 on April 17 as a flying wind tunnel for testing part of a ramjet engine. Originally, 25 rockets were to have been fired but the program has been extended to 50.

When the V-2's have been expended, testing will go on with other American designed and built rockets. One of these is the Navy HASR-2 being built by Glenn L. Martin. Approximately the same length as V-2 but a little slimmer, this rocket is expected to reach an altitude of 1,255,000 feet.

Not doubting that a rocket will someday reach the moon, we asked a qualified scientist in each of three fields of powerplant, guidance, and control to comment on the possibilities of such an undertaking, assuming that adequate money would be available.

"In order to rocket a radio transmitter to the moon," said the powerplant man, "a miracle would have to happen. That miracle would consist of the exactly right combination of dozens of factors that go into rocket design—the motor, the tanks, the turbine, the piping, the structure, the radio, the countless refinements in development. With such a miracle we might make it in a year if we put a whole concern the size of X on the problem and if, when the thing was built and assembled in the desert, it did not explode. Five years if we really concentrated on it; less, if freaks of circumstances permitted us to reach fortunate combinations of things."

"Ten to 15 years," said the guidance man, "assuming progress at the present rate of development. Figures of 10 months—with necessary appropriations—are absurd because there's no one at the present time who really knows how to do such a job."

"The difficulty of colliding with meteorites, landing and take-off air friction, etc.," thinks the control man, "make the problem a lot more than just thinking up an idea. Presuming propulsion was not the main problem there remains the difficulty of direction and control." Of a man-carrying moon rocket he concludes, "I would only venture the safe estimate of maybe within my lifetime—I wouldn't be surprised if the trip were made." END

FLYING

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Text by Ace Correspondent James Lee
Photographs by Joe Rosenthal

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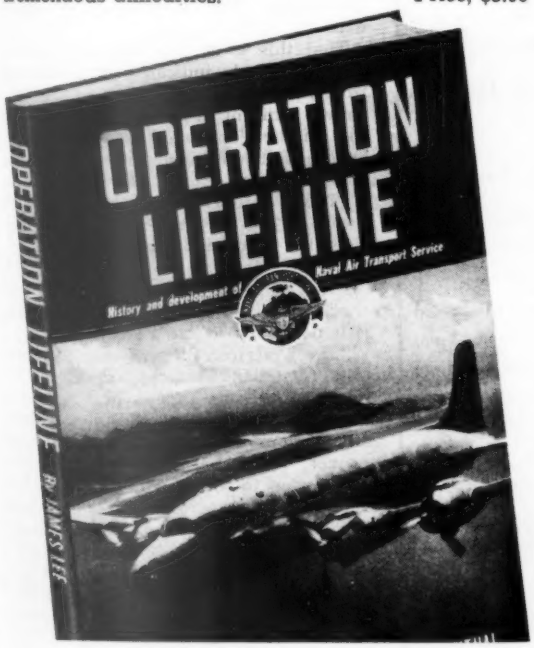

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Flying Up to Canada?

(*Continued from page* 44)

are some things to put down on your check list:

Don't forget your aircraft registration certificate, airworthiness certificate, logbook and license.

Be sure to chart your trip to hit a Customs field on both sides of the border (see chart).

At the U. S. Customs office you will fill out Customs Form 7509 in triplicate. Have one copy signed and take it along, to show on reentering the country.

Before take-off from the States, wire or phone Canadian Customs men at your port-of-arrival, giving them at least an hour's advance notice of your ETA. (It's best to wire and ask for a return wire of confirmation. Then if you get off course and have to land at another field, you can prove by your wire from the Canadian officials that you're not trying to sneak in.)

File a flight plan at your port of departure.

Report to Canadian Customs as soon as you land. They will have you fill out what they call Form A-6 Report Inwards. If your next stop is another Canadian port of entry, keep a copy of this one too. Customs at the second port will want it for their files.

After you have cleared customs and established that you are on a flying holiday, you will be given a Permit Form C-15. It's good for three months and is, in effect, your passport—so hold onto it.

Coming back, leave by an airport with Customs service and shoot for a Customs port on this side, advising your ETA. The Canadians will want you to fill in Form A-8 Report Outwards, showing what you're taking home. They'll also ask you to give back Form C-15.

U. S. Customs will ask you to fill out Form 7507, the Entry Declaration. (Anything over $100 is subject to import taxes.)

That this is 90 per cent unnecessary bureaucracy is indicated in a dispatch from R. H. Baker, chairman of the Vancouver unit of AOPA, who points out that in the Vancouver area long strides have been taken toward streamlining the whole Customs system. Mr. Baker says:

"The situation as it stacks up here on the west coast for private flying is considerably different from the procedure in the east. It is not necessary, in this district at least, for any American to check out from the customs airport, nor is it necessary to use Form 7509. . . .

"The American aircraft may fly direct to a Canadian Customs airport in this territory, such as Vancouver, direct from any place in the United States without any Customs forms whatsoever. At Vancouver, which has teletype, flight plan notification to the airport is expected in lieu of a telegram to customs. We have an arrangement here whereby the tower notifies customs.

"Where there is no CAA teletype it is not necessary to have a flight plan filed. Upon arrival at the Vancouver airport it is not necessary to fill in copies of A6 in-

ward manifests for planes operated for "health and pleasure." These are now entered on the C15 Touring Permit. . . .

"For returning to the U. S., we have also ended the use of A8 outward manifests, and it is no longer necessary for returning Americans to fill out Form 7507. CAA at the customs airports in this territory—Bellingham, Seattle, Spokane—advises Customs on receipt of a flight plan from Canada.

"Out here we know of no 24-hour service, seven days a week by either U. S. Customs or Immigration at no charge to the pilot.

"We can see no future in aerial tourists until Sunday and overtime charges by U. S. officials are abolished. Weekends and holidays are the most obvious time when private flyers are on the move."

Additional specific information on West Coast customs procedure can be obtained by writing Mr. Baker, % Vancouver Tourist Association, Vancouver, B. C.

If you're the outdoor type, the historic-old-spots sightseeing type, the quaint-scenery type, or just the hell-of-a-good-time-wish-you-were-here type, Canada's your dish. It's also your dish if you like fat steaks at lean prices, friendly people, good weather (generally), and bargains in such items as furs, liquor, and native weaving, including woolens and tweeds.

Here is a summary to help you:

ROOMS AND FOOD: Canada's OPA no longer controls hotels. Hotels in the big towns therefore have rates comparable with matching hotels in this country. In smaller towns, rooms cost somewhat less than here. There are still price controls on food and restaurants. For instance, in a big town like Montreal, a breakfast that would cost $1 in the U. S. is 50c, and a $3 four-course steak dinner can be had for about half that price. We talked with one man just back from Montreal who told of a dinner bill for six persons, with wine—$9.40. Small-town prices indicate in most instances that the natives don't know there's an inflation on. Good room and board can be had for as little as $1.50 a day. The farther west you go, the better the meats, the fresher the vegetables, the lower the prices.

HUNTING AND FISHING: Canadian hunters are less hamstrung by bureaucratic regulations than formerly. You can now take firearms into the country without a Canadian permit. Some provinces, however, require that you register guns. Open season on everything but bear, wildcat and wolves—you can shoot them any time—is in the fall and winter; summer is a poor time to plan to hunt. Non-resident fees are high, too—$50 in Nova Scotia for a general license, to cite one example. Hunting season in most provinces opens up about October 1, with plentiful deer and any kind of game bird you want to name. Most fishing is open all summer, with the exception of rainbow trout, prohibited in well-fished spots until July 1. There is no closed season on bass. If you have pontoons, it is easy to sit down on a lake within easy reach of practically anywhere in Canada and throw your line into water that has probably not been fished for decades, if ever. Licenses run up to $5 for a season.

PLANE PROBLEMS: There are not as many airports per square mile in Canada, and—generally—fields are not as good as in the U. S. Long hops are often required to get from here to there and—unless you're an excellent navigator—guides are a near-necessity, aground or aloft. They can be hired for as little as $5 a day—but it's usually twice that or more. By the same token, it is often difficult to get gas and oil, and repairs or repair parts may have to be imported from miles away. Moral: be doubly careful about planning trips and not only listen to all the advice you can get from natives—heed it.

Speaking of plans, if you want to chart your trip in detail and get *all* the low-down on a given area, there are experts waiting to answer your questions:

New Brunswick Government Bureau of Information and Tourist Travel, Fredericton, New Brunswick.

Province of Quebec Tourist Bureau, Industry and Commerce, Quebec City, P. Q.

Ontario Travel and Publicity Bureau, Parliament Bldg., Toronto.

Manitoba Travel and Publicity Bureau, Winnipeg, Man.

Alberta Publicity and Travel Bureau, Edmonton, Alberta.

British Columbia Government Travel Bureau, Department of Trade and Industry, Victoria, B. C.

P. S. Have a good time—and let us know how you make out. END

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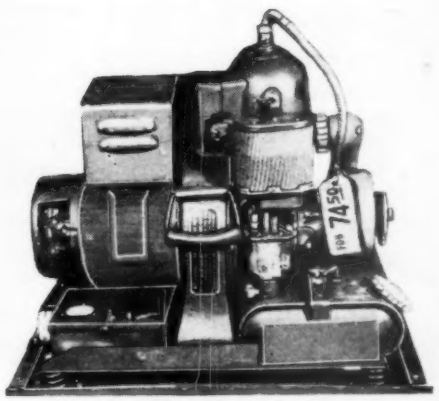

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Inyo and Mono Counties

(*Continued from page 28*)

way through. Accommodations in the swank lodges range from $20 per day down to as low as 50 cents daily for camping privileges.

Known as "America's Range of Recreation," the district boasts almost every holiday sport imaginable—hunting, fishing, skiing, skating, riding, swimming, sulphur baths, hiking, tobogganing, boating, sightseeing, pack trips, scenic flying, etc. And all of these, outside of hunting and fishing, are available almost all year.

Airports in Owens Valley are open year-around, but most of the small mountain airports are closed during the winter months. When flying into the mountain fields in the summer and fall, however, remember that none of them offer fuel or servicing facilities.

Most of the High Sierra ports are above 8,000 feet high, which prompted CAA and local AOPA officials to ask FLYING to issue this warning to visiting pilots:

DON'T TRY TO LAND IN THESE FIELDS UNLESS YOU ARE AN EXPERIENCED MOUNTAIN PILOT!

They point out that some pilots fly into these ports to save packing into fishing and hunting areas. But at the most a pack trip is only 20 miles from one of the principal Owens Valley cities — hardly worth risking your neck over. The fields are listed, however, for use in emergency.

Deer hunting is in full swing right now. The season opened September 1 and remains open until October 15. Also, this year, although it has not been officially announced as yet, the Federal Government is expected to declare open season on a roving herd of wild elk which for years has troubled ranchers along the Owens River.

Hunting for quail, pheasant, duck, geese, and bear runs from 10 days to two months, depending upon the yearly action of the Division of Fish and Game under the provisions of the Regulatory Powers Act. Bag limit on deer is usually one buck. Migratory fowl bag limits are set by Federal action and are October 21 to November 3 and December 23 to January 5 on water fowl except wood ducks, snow geese, brant, Ross geese and swans. Open season on bandtailed pigeons is December 1 to 31.

Fishing season is May 1 through October 31. There are beautiful golden trout in Desolation Lake and slashing rainbows in the famous Owens River gorge. The rushing streams and more than 2,000 lakes, most of them stocked with trout from many fisheries, produce almost any species of trout to be named—Lochleven, eastern brook, German Brown, etc.

Information concerning both fishing and hunting licenses is available through all sports stores, chambers of commerce, service clubs, etc. In the Inyo-Mono counties there are 25 separate packers' outfits. They are banded together under the name of Eastern Unit, High Sierra Packers Association. Rates run approximately $10 per day for the guide and his horse and $4 for day packs, but reduced according to the number of days the horses are used. Riding stock may also be rented at $4 per day and lower.

The fishing guide published at Bishop gives these valuable tips:

"Most of the lakes that can be reached by car are large enough for trolling. Use any good trolling rod, a level winding reel, 12- to 30-lb.-test line, and large spinners. Behind the spinner, two or three feet of leader with hook baited with worms or use a flatfish. Remember to use several swivels in order to keep your line from twisting. For fly and bait fishing in streams and lakes, use a good fly rod 7½ to 9½ feet, level or tapered line with the lightest tapered leaders obtainable. Sometimes colored leaders will catch fish when white leaders seem to scare them away. You may lose some fish with light leaders (1x to 3x) but the greater number of strikes due to the use of light leaders make up for the loss of a few flies and fish. If you are a bait fisherman (90 per cent are) use white and red salmon eggs, clusters, worms, minnows and grasshoppers. Buy a net. Many trophy fish are lost every year because the fisherman tries to 'horse 'em out.'"

For the skiing enthusiast, there are lifts all along the mountain ridge. Skiing is done all through the winter and into late spring at most resorts. At some of the higher levels, skiers enjoy the sport all year round.

And for sightseeing, the flying vacationer has the Devil's Post Pile, Mt. Whitney, the whole panorama of rugged High Sierra peaks, many over 14,000 feet high, and the brown, parched desert below; tumbling streams, mountain meadows, glaciers, lakes, granite canyons, geysers, craters, enormous earthquake cracks, and many other unusual sights.

Entry into the Owens River Valley district is best by way of Los Angeles but also may be negotiated via Reno, Nev. Traveling northward from the south end of Inyo County, the pilot first comes to Olancha. From here pack trips are made into great fishing country. There are motels and hotels in Olancha; Jordan Hot Springs and other resorts in the mountains. Write the Olancha Chamber of Commerce for literature.

Lone Pine is at the foot of Mt. Whitney. From here fishing and hunting, plus sightseeing, trips are arranged. There are convenient hotels, lodges and motels. Resorts are in the nearby mountains. It is the opening to Cottonwood Lakes and others, with Golden Trout Camp one of the several resorts. More information is available through the Lone Pine Chamber of Commerce.

At Independence and Big Pine, the way is opened into the lush streams of the Kearsage Valley and the Bishop Lake area where rainbows, browns and Lochleven trout are to be caught on salmon eggs and worms in the spring and with flies and spinners during the summer and fall. Packers will take the angler or hunter into the best regions. There are hotels and motels at both towns, and camps and resorts in the mountains. The Independence Chamber of Commerce or the Inyo County clerk will supply further details.

Bishop is the true hub of the High Sierra area. Here, the flying vacationers are only a few miles from Rock Creek, Hilton, Convict and numerous other lakes. There also are many skiing slopes available and the hunting season attracts sportsmen from throughout the country. There are scores of resorts, camp areas, hotels and motels, ranging from $10 a day downward. Information folders will be mailed by the Bishop Chamber of Commerce, the Bishop city clerk or the Automobile Club of Southern California.

North of Bishop is the Mammoth Mountain area, where ski conditions are said to be unexcelled on the continent. Mam-

"It's those Jolly-Cola guys coming in at two o'clock!"

moth, June, Garnet, Mono, Duck, Alger and scores of other lakes are in this area. Resorts have swimming pools and other sports. There are many hotels, lodges, camps and motels available, all at reasonable prices. Nearby is the fantastic Devil Post Pile National Monument. For further information, write the Chamber of Commerce at Bridgeport, or the County Clerk of Mono County at that town.

Around the Bridgeport area there are numerous warm springs, ski areas and excellent fishing spots. Such game hunting as deer, duck, geese and mountain quail is unsurpassed in the High Sierra range. The district abounds with lodges, hotels, camps and motels, many high in the snow country.

Mono Lake is just south of Bridgeport, and the town of Leevining is the entry into Tioga Pass and fine fishing, hunting and skiing vicinities. There also are many hotels, resorts, motels and camps in the district. Complete details may also be obtained from the various agencies at Bridgeport.

To get away from the high elevations and snow, the private pilot can fly over to Death Valley, which is located about 90 air miles east and south of Lone Pine. Here you can land at a good airport at Furnace Creek, which, incidentally, is 178 feet below sea level. The season starts in November and runs into May. Rates for inns and hotels run from $17.50 per day, American plan, on downward, but there are motels and camps which are less expensive. This is a scenic area, including Dante's View, Bad Water, lowest point in the U. S., from which you can look across to Mt. Whitney, highest spot; Death Valley Scotty's castle, the Devil's Golf Course, Twenty Mule-Team Canyon, Golden Canyon, Artist's Drive, Natural Bridge, Zabriskie Point, and other awe-inspiring sights. For information on this "basement of the Western Hemisphere," write the Death Valley Hotel Company, 510 West Sixth Street, Los Angeles 14, Calif.

Airports serving Inyo-Mono Counties, listed from south to north, include:

Lone Pine Municipal is located only a mile away from the town and has two runways, the longest measuring 2,900 feet. Bob White, airport manager, will supply transportation into town. White himself is a veteran mountain pilot and flies hunting and fishing parties into high mountain fields at $25 a round trip per person, including 50 pounds of baggage.

Monache Meadows, Tunnel Air Camp and *Templeton Meadows* are forestry airports used by White but the CAA carefully warns inexperienced mountain pilots against trying to get into and out of these fields. The three are all above the 8,000-foot level and runways are short. Lone Pine, where good servicing facilities are available, plus communications, is located only a few miles away, so don't use these mountain fields unless for emergency, the CAA cautions.

Independence is located only one-half mile from town, to which transportation is provided by the operator. The one runway is 2,900x1,000 feet and only 80 grade octane is available. There are no repair facilities but the field is convenient to

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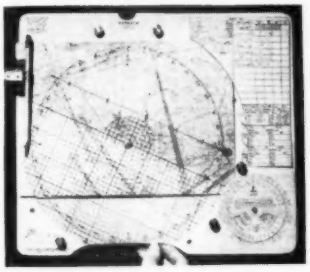

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many mountain resorts in the vicinity.

Inyo County (Manzanar) is a CAA-built field, open to the private pilot but not in operation. CAA officials assert that potential operators have not been able to come to terms with Inyo County officials in regard to operational aspects, therefore leaving the field idle. It has two asphalt runways, measuring 5,500 and 5,000 feet, and has clear approaches. There are no servicing facilities nor communications, although 80 grade octane may be purchased at Independence and transported back to the field. Pilots may tie their planes down on the airport, however, and they will be periodically patrolled by the Inyo sheriff deputies. Taxis are available to and from town.

Big Pine is located three miles from that town, and has one runway measuring 3,200 feet. It is also open to private flying, although there are no servicing facilities at present. The CAA expects the field to be in complete operation this fall. Taxis are the only means of transportation.

Bishop is a surplus Army air base and has two asphalt runways, measuring 7,500 and 6,000 feet. Approaches are unobstructed. The tower is in operation only during week-ends or heavy flying days, although there is no radio communications. The town is only two miles away and the operators supply transportation. All service and repair facilities are available and the field is open all year. One feature of Bishop is that the private pilot can taxi his plane to within 50 yards of a wide stream, where trout are plentiful. Also, during deer season last year, the operators bagged three bucks on the edge of the property.

Bryant, with one 4,200-foot runway, is located only a quarter of a mile from Bridgeport, to which Slick Bryant, the operator, will supply transportation. There is also a seaplane strip at Mono Lake, located 20 miles south of Bridgeport. The field supplies 80 grade octane but no repair facilities, and is closed by snow from late December to about April each year.

Arcularius Ranch has a 6,000-foot runway, but the elevation is 8,000 feet! No service facilities are available. The field is adjacent to a resort ranch. *Panamint Springs*, located 12 miles from Darwin, has one 3,000-foot runway but is listed mainly as an emergency field. There are no facilities.

Furnace Creek is in Death Valley, about 90 miles across Owens Valley from Lone Pine. It has two runways, one 3,400 feet and the other 2,750 feet, both gravel. The airport is only one-half mile from the resort town. A&E mechanics do minor repair work and fuel is grade 80 and 91 octane. The field is open all year. END

SOME AIRPORTS SERVING INYO AND MONO COUNTIES, CALIF.

Airport (longitude and latitude)	Phone number	Nearest town and distance	Number of runways	Length of longest runway	Gasoline grades	Service facilities	Season open	Write to
Bishop Airport (37°22′N-118°21′30″W)	Bishop 2971	Bishop (2 miles)	two	7500′	80-91	A&E Mechs All overhaul	all-year	Bob Symonds, Bishop Airport, Bishop, Calif.
Lone Pine Municipal (36°35′45″ N-118°03′ 15″ W)	Lone Pine 2782	Lone Pine (1 mile)	two	2900′	80-91	A&E Mechs. minor repairs	all-year	Bob White, Lone Pine Airport, Lone Pine, Calif.
Independence (36°49′ N-118°12′15″)	None	Independence (½ mile)	one	2900′	80	Fuel only	all-year	Manager, Independence Airport, Independence, Cal.
Furnace Creek (36°27′15″ N-116°51′ 15″ W)	Furnace Creek operator	Furnace Creek (1½ mile)	two	3400′	80-91	A&E Mechs. Minor repairs	all-year	Manager, Furnace Creek Airport, Furnace Creek, Cal.
Bryant (38°15′45″ N-119°13′ 30″ W)	None	Bridgeport (¼ mile)	one	4200′ Seaplane strip at Mono Lake	80	Fuel only	April to December	Slick Bryant, Bridgeport, Calif.
Inyo County (Manzanar) (36°43′30″N-118°05′W)	None	Independence (5 miles)	two	5500′	None	None	all-year	Board of Supervisors Inyo County, Independence, Calif.
*Arcularius Ranch (37°47′ N-118°48′ W)	None	Arcularius Ranch (1 mile)	one	6000′ (Elevation 8000′!)	None	None	April to November	Arcularius Ranch, Arcularius, Calif.
*Big Pine (37°09′40″N-118°13′W)	None	Big Pine (miles)	one	3200′	None	None	all-year	
*Panamint Springs (36°23′50″ N-117°23′ 25″ W)	None	Darwin (12 miles)	one	3000′	None	None	all-year	
*Templeton Meadows (36°21′30″ N-118°12′ 05″ W)	None	Olancha (12 miles)	two	2000′	None	None	May to November	
*Monache Meadows (36°14′10″ N-118°08′ 45″ W)	None	Olancha (9 miles)	two	2500′	None	None	May to November	
*Tunnel Air Camp (36°25′40″N-118°16′W)	None	Olancha (16 miles)	one	2100′	None	None	May to November	

*Listed only for use in emergency

Forgotten Pioneer

(*Continued from page* 34)

stick, a Frenchman by the name of H. Piquet, as the first airmail pilot.

Just 24 hours before, however, Wiseman was sailing along some 100 feet above California fields, fulfilling a promise to his home-town of Santa Rosa that he "wouldn't come back unless he could return by airplane." Making that flight with him "as a gag" were letters from the mayor and postmaster at Petaluma to the mayor and postmaster of Santa Rosa, a package of groceries, and a bundle of papers from the *Press Democrat* of Santa Rosa, which were to be "delivered" from the air along the way.

He remembers now that one woman dashed from her farmhouse to wave a dish towel for him to "scat" when he zoomed close overhead. A team of horses ran away; cattle stampeded and, as he flew along, he could see frightened rabbits running madly in circles on the ground. One man, waving at the plane, caught his issue of the *Press Democrat* in his outstretched hands, probably the most surprised of subscribers.

Wiseman, who devotes his time now to a golf game that hovers around the low 80's, was a speed demon of the "tsk tsk, he will come to a violent end" kind before he accomplished this "unbelievable feat" with wings.

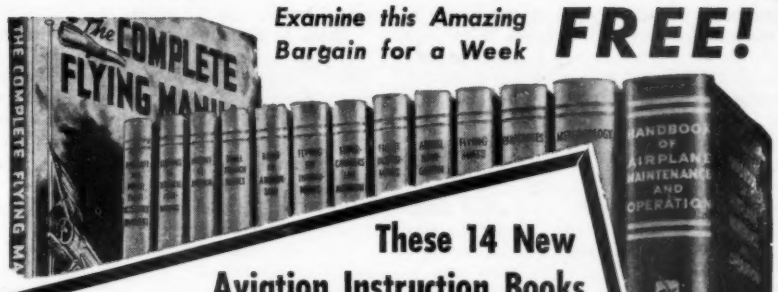
A champion bicycle racer first, he transferred his love to the faster swoosh of the first automobiles, racing wildly against other daredevils and winning a room full of cups. Then, in 1909, Wiseman found himself in Dayton, O., within envy distance of an airplane. He talked to the Wright Brothers long enough to know that his heart had sprouted wings, and headed west. He interested his mechanic in aviation—and a few weeks later gave the "bug" to other racing enthusiasts. In a field near Petaluma they began to build their first airplane.

A year passed before the plane actually flew—the maiden flight was May 30, 1910. It was a great disappointment since the craft was barely able to rise from the ground but finally that autumn the "great machine" took to the air and California had its first home-built aircraft.

Still preserved, it seems incredible that the flimsy-looking collection of wood and wire actually could fly or that anybody would have the courage to accompany it off the ground.

The biplane resembled an awkward kite—a shaky looking contraption with fluttery cloth wings. Col. E. J. Hall, pioneer aeronautical engineer, built four engines before the "right one" was hoisted into place between the wings behind the open-air pilot's seat. Wiseman manipulated the plane with a steering wheel mounted on a stick. The landing gear consisted of double bicycle wheels and long runners. The propeller whirled around at the rear of the motor, out of the way of the pilot's vision.

This airplane was given to the Port of Oakland many years ago by Dr. Robert L. Cooke, brother of Weldon Bagster Cooke, pioneer in California aviation. It



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has been on display in recent years at Oakland Airport with another "kite" of a slightly later vintage. It is destined now for possible renewed glory. If legal arrangements can be made, it will be sent to the Smithsonian.

For the first few months after they built the plane that actually flew, Wiseman and his friends made good money from a thrilled and still somewhat skeptical public, which was willing to pay hard cash for the opportunity of seeing a flying machine. The trick then was to lift it just a few feet off the ground and set it down again, before the novelty wore off.

Wiseman, as the pilot, won races and honors. People flocked to see him, although he was as modest then as he is now. He still shudders at the accomplishments claimed in his behalf by press agents and writers, including the blurbs of one before-his-time scribe who promised the audience that a couple would be married in the plane while it hovered overhead—this in the days when a plane could barely lift the pilot.

Then, in February, 1911, after winning "all the money" in a rain-drenched San Francisco exhibition, Wiseman decided to make the promised flight from Petaluma to Santa Rosa. The letters were an added thought, a "chamber of commerce" idea dreamed up along the line to add a new feature to the much publicized hop.

After one false start, the great day finally dawned.

The newspapers of the day reported the flight in headlines. "Fred Wiseman, the birdman, came sailing home today," one sheet proclaimed in its largest type. "He kept the promise he made. He said he would never return to Santa Rosa from Petaluma if he couldn't fly!"

The take-off almost ended in a smash-up when the plane's running wheels struck soft mud on the cow pasture used as a field.

"The progress of the machine was materially checked," the newspaper stated, "but only for an instant. Wiseman tilted his forward planes, the engine responded nobly to the added load and the great machine began to rise. Wiseman was off on the last stage of his homeward flight!"

Watchers along the way reported progress of the flight by telephone. Automobiles followed on the dusty roads and when the plane flew past Cotati, a few miles from the end of the flight, word was flashed to the office of the *Press Democrat*. Bombs were exploded in front of the office to notify the public. Whistles blew, fire bells rang and the whole town knew that "Wiseman, the undaunted, was coming home."

"All over town automobiles were in readiness and people quickly piled in and started for the south side, where the best view could be obtained. Hundreds sought places of vantage on the housetops and roofs and, sure enough, there he came.

"For the greater part, Wiseman flew low, his height averaging about 100 feet, although occasionally he arose to twice that altitude.

"Rising gracefully to clear some trees, a wire caught in the propeller; there was a rasping sound, the engine stopped and Wiseman, half a mile from the city limits, knew something serious had happened.

"Tilting the machine sharply forward, he coasted down to the earth, over a newly plowed field of wet adobe. The running wheels struck and sank deep and the machine pitched forward on its skids like a rocking chair, then quickly settled back."

The flight was ended. Wiseman had flown the 14½ miles in 12 min. 20 sec.

Santa Rosa declared a holiday. The tumult lasted for days. There were brass bands which played "The Conquering Hero Comes." There were banquets and speeches and awards and fireworks and exhibition flights.

Everybody wanted to see the aircraft after that and watch it fly. Wiseman and his friends barnstormed for about a year, touring up and down the Pacific Coast, giving residents of Washington their first peek at the wondrous machine, and traveled east as far as Reno, Nev.

But it cost a lot to fly, to knock the plane down and ship it by train from town to town and reassemble it again, and the pioneer pilot finally decided aviation was too expensive. In the meantime, in September, 1911, at Nassau Boulevard, Long Island, N.Y., Earle L. Ovington made the first credited airmail flight in the United States, covering a set route between a temporary post office at the field to the post office at Mineola, N.Y.

In 1912, the Wiseman plane came into the hands of Weldon Cooke, who took the craft to Oakland and entered it in the Third International Aviation Meet, February 17 to 25, 1912. He used the craft in other meets and barnstorming tours until he was fatally injured in the crash of another plane in 1914.

Wiseman returned to the automotive business, then went to work as a specialist for Standard Oil. He retired from that company after 25 years' service. Although Wiseman dropped from aviation circles, his plane had its share of fame. It has been on exhibit various times and was displayed during the Golden Gate International Exhibition. END

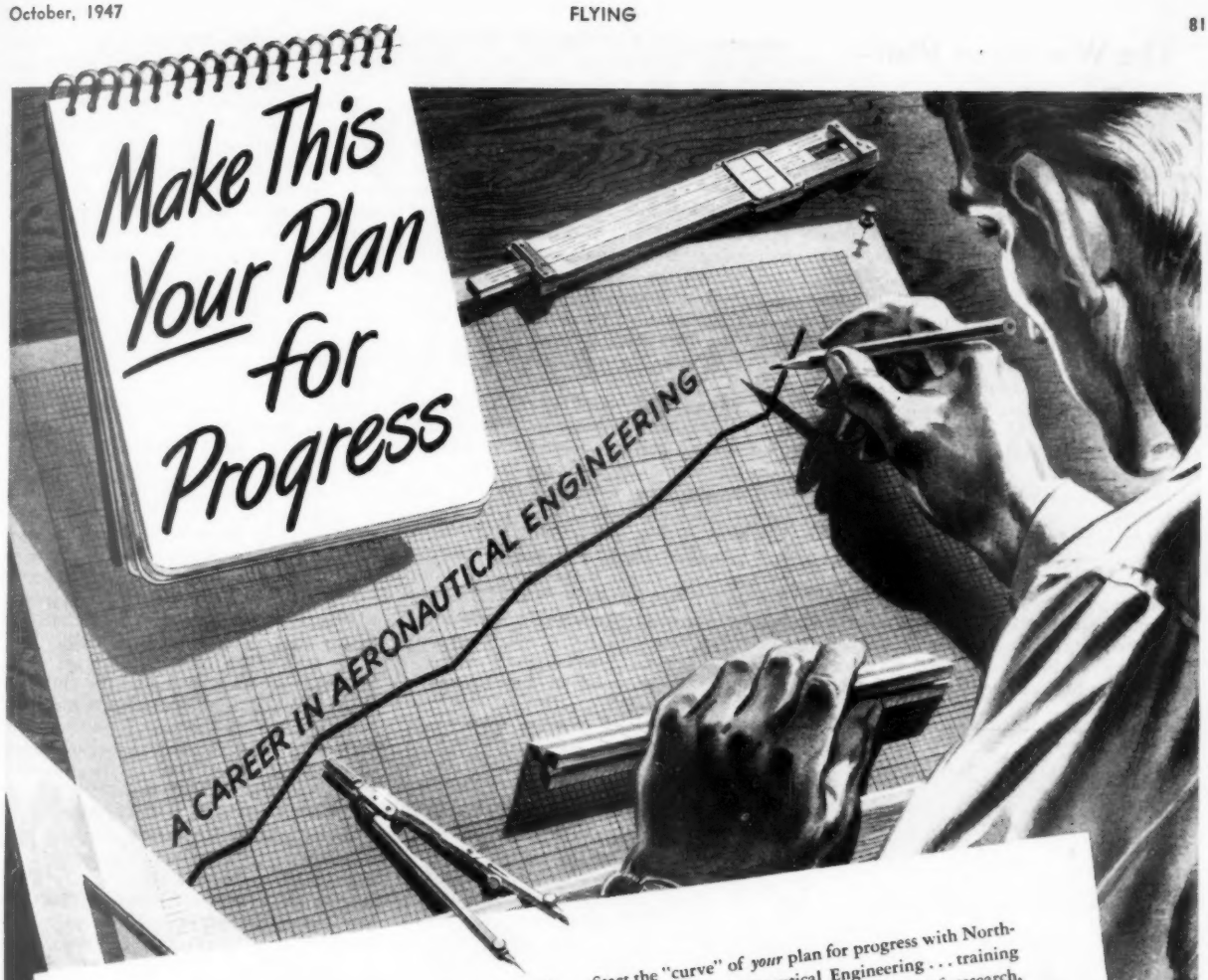
LAND-LOCKED FLYING BOAT

"RELUCTANT RONALD," a Navy PBY-5, was land-locked four months recently, after engine trouble forced a landing on Arizona's semi-parched Lake Carl Pleasant. The flying boat's skimpy water landing area evaporated so rapidly under the desert sun that a new engine couldn't be fitted before the lake had all but disappeared.

With one engine faltering, the PBY-5 originally approached the lake from the dam side. On letting down for the landing, the crew discovered mud flats where most of the lake was supposed to be. They circled quickly, came in from the opposite direction, and settled down on the puddle. By cutting a sharp circle in the wide part of the lake, the plane lost enough speed to make a safe stop.

Then came more trouble. Before the plane's engine could be changed the lake dried up. The only answer was to wait for it to fill again. Four months later the rains came and "Reluctant Ronald," fitted with a new engine, continued its flight to San Diego.

Take-off (shown in the picture above) was made by taxiing to the downward end of the lake to use the full 3,500-foot take-off area. The *Catalina* was airborne in 15 seconds, after an estimated take-off run of only 800 feet—unusually short in view of the lake's 2,500-foot altitude.



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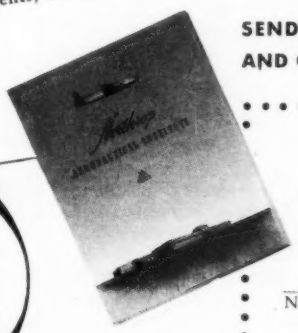

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The Waukegan Plan—One Year Later

(*Continued from page 52*)

furnished all the planes, housed them and serviced them.

Membership fees were $25 for the year. This entitled the members to all club privileges, including even a 10 per cent discount on gasoline and personal equipment sold at the airport. Monthly dues of $10 could be applied toward flying time during that current month. Members were required to observe Civil Air Regulations and follow local field rules. Violators were asked to resign. High school students and persons under 17 could join for a $10 annual membership fee and purchase of a $5 flight card each month. Members were allowed to take airplanes cross-country after check-out.

Carpenter worked out this plan after a study which indicated that 75 per cent of his regular students were dropping out because of high costs. He sought to bring the costs back within reach of these flyers and at the same time to assure himself of a high enough volume of business to make the club pay off. The club members had nothing to lose if they didn't like the plan—except their $25 membership fee. They were not obligated in any other way.

Carpenter gave club members every break. He did not require that they fly out their time in the same month in which they bought their flight cards, for example. This had the disadvantage of increasing his seasonal peaks. He found that during the summer the club flyers did a tremendous amount of flying but when the weather got a little bad they began to drop out. A good many members bought cards which they never did fly out.

In many cases, because of initial expenses, it cost the members more to fly than if they had not joined the club.

In the 13 months it existed, the Economy Flying Club had 303 members who flew a total of 5,184 hours. That seems like a lot of time but actually it averages only about 17 hours per member for 13 months—not much more than an hour per month per member. The 303 members consisted of 26 high school students, 81 servicemen, and 196 other flyers, including farmers, businessmen, factory workers. At the end of the 13-month period, the club had only 75 members left—but they were the most active and interested pilots.

Twenty-two to 26 airplanes were available to members throughout this period, so it wasn't lack of planes that accounted for the low average. They flew safely, too. There were only two minor mishaps and no one was hurt—one pilot turned over a Stearman, another damaged a Stinson. Only 67 members flew over 25 hours during the year, however, and of these, only 18 flew more than 50 hours and only four more than 75 hours. Yet members were permitted to buy just as much time as they wanted at the club's low rates—provided they always bought the minimum $10 monthly flight card, of course.

Carpenter's books indicate that most of the pilots who were flying at his airport before the club was organized didn't fly much more under the cheaper rates. "They just fly the same amount," he says. "The only loser is the operator." He is careful to point out, however, that he did not lose money on the Economy Flying Club, despite the fact that less flying was done than expected. "The thing that saved us was the large number of members who joined the club and didn't use up their initial $25 membership fees."

He lists some of the reasons why club members dropped out. "Bought own plane," says one. "Left town" . . . "Can't afford it" . . . "Joined GI program" . . . "Family objects" (a rare reason, incidentally) . . . "Automobile accident" . . . and so on. On the chance that there might be hidden reasons behind the withdrawal of so many club members, FLYING's managing editor interviewed 12 of the members who had dropped out. His findings generally sustain Carpenter's conclusions. Although there were a few mildly critical comments, they concern detail only. Virtually all ex-club members agreed that the club was well-run, that the planes were in excellent condition, and that the airport was well-managed.

Why did they drop out, then?

Ex-member Ray Smith, for instance, feels that the club was too expensive. He was able to fly only on Sundays when the airport was most crowded. Sometimes he would have to wait for a plane, and the air was often so full he would have to wait 10 minutes to get into the traffic pattern—and another 10 minutes taxiing back to the hangar. He feels that all the flyers didn't follow the patterns as closely as they should, and believes that the field should have stressed more ground school. He belonged two months during which he flew 7½ hours.

Charles Parsons dropped out of the club when he got too busy. "But probably if Wayne had kept after me, I would have kept on," he admits. He objected to the fact that the same instructor wasn't assigned to the same student each time but admits that he didn't notify the airport ahead of time before going out to fly. He belonged to the club for five months and flew 15 hr. 10 min.

Bob Morrell, who remained a member,

GLIDER HOME

COMPACT as an American trailer home is an English businessman's solution to the housing problem. He has had the fuselage of a *Horsa* glider converted into a three-room home at Southbourn. His finished house will have a 10x7-foot bedroom, a 15x7-foot living room, and an 8x7-foot kitchenette.

The *Horsa*, made by Airspeed, was the standard troop-carrying glider used by the British during the war. It had a wing span of 88 feet and was 67 feet long, of which the section in the above photograph uses 33 feet. It weighed 7,500 pounds empty and carried two pilots plus 20 to 25 soldiers. If the glider-house proves successful, a building contractor plans to convert more of the big gliders.

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had some constructive criticisms to make. He felt that Carpenter's membership fee was too low. "With a higher fee Wayne would have eliminated a lot of guys who were just playing," he says. Morrell also recommended more ground instruction and more care in assuring continuity of instruction.

Josephine Balsamo, who lives in Chicago, dropped out because it took her so long to get out to Waukegan airport, which is well over an hour from her home.

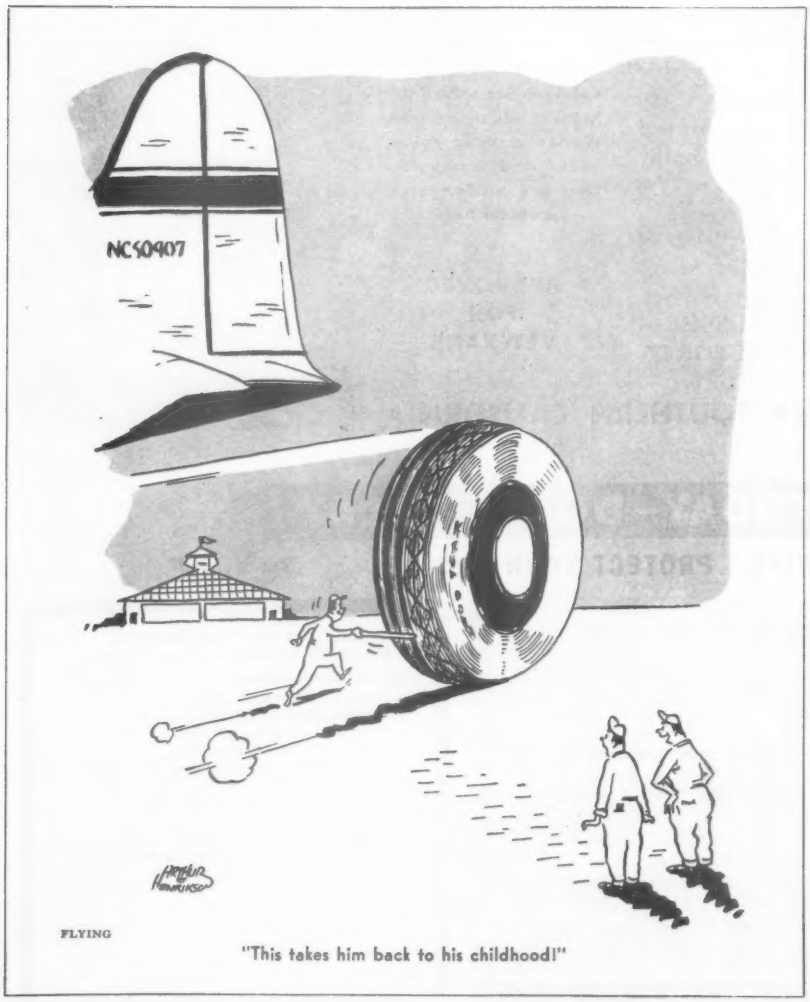
Another objector to the travel problem was George Lake, who says, "I didn't have time or the facilities to get out there as often as I wanted to." There is no bus service to the airport and the occasional courtesy car, he said, was too uncertain for him to be able to depend on it.

Dr. Lorne W. Mason of Evanston is an inexperienced pilot who most wanted to fly the Stinson *Voyager 150* or the Piper *Super Cruiser*. He objected to the fact that these planes were too often out on cross country when he went to the airport to fly. Like most of these ex-members, Dr. Mason is enthusiastic about Carpenter's operation. "The planes are kept up as well as or better than any field I know of," he asserts. "Wayne runs a good place. You go out there and they don't act like they're doing you a favor to let you fly."

John Litchfield explained a very common problem that faces pilots today. "I got married," he says, "and you can't fly very well trying to keep a wife. It was economical in its way, but in another sense it certainly takes a lot of time as well as a lot of money. Now I've got a home and a car and a few other things to take care of. They have to come first. I'd like to keep my flying up and perhaps some day I can do it again—really follow it up, I mean."

Allan Nolan dropped out because he joined the Air Forces Reserve and flies now at Orchard Place Airport. "I'd have stuck with it, otherwise," he says. Allan Stephan, who flew 7 hr. 35 min. in three months last summer, dropped out after a siege of illness. James Diesi dropped out for a similar reason—he had an automobile accident which laid him up.

About a third of those interviewed mentioned that, even though they felt that the club prices were about as low as possible, they still could not afford them. It is quite evident that a good half of the members dropped out for no other reason than just plain lack of interest. There doesn't seem to be any specific pattern of reasons.



FLYING

"This takes him back to his childhood!"

But Wayne Carpenter isn't letting this drop here. In his typical vigorous manner he's come up with another proposal—this one designed to strengthen the weaknesses in last year's club. The main feature of his new club is to confine it to people really interested in flying. He wants to eliminate the quitters and keep the thing with a solid core all the way through.

And again in typical Carpenter fashion, his new costs are actually lower than last year's costs—if the pilot flies enough.

The nucleus of the new club is made up of those who stuck with the old one—who proved interested enough in flying to fly. It is no longer an airport-operated club but is incorporated separately as a club not for profit. Separate books are kept; the club planes are separate from the airport's planes.

Carpenter figures that the new club should have a maximum of 150 members and eight planes. The club members pay $50 for a life membership in the club. Their dues are $6.50 per month, which goes to pay insurance and fixed expenses—but does not apply toward flight time as did last year's $10 monthly flight fees. Members are not required to fly any fixed amount of time and they will pay for only the amount they do fly.

The new hourly rates are even lower than last year's. A PT-23, used for acrobatics, is $6 per hour; one Stinson *Voyager 150* is $5; two *Cub Trainers* and a Taylorcraft are $2.50 each; one Luscombe 65 is $3, and two *Super Cruisers* are $4 each per hour.

Where does Carpenter fit into this deal?

"I sell 'em hangar space, maintenance, gasoline," he says. "It's up to my organization to keep the planes flying. And, of course, I sell them their planes."

Carpenter also exercises control over the club for two years to guarantee that the membership stays healthy. After that time the planes will be paid for and the whole setup will be turned over to the members. The members can choose what planes they want and they will be on their own. If they want new planes at the end of two years they will have to build up their own reserve.

Carpenter would rather have a large group flying at lower cost than a few pilots buzzing around his airport at $8.50 per hour. In the long run he thinks he will gain by interesting more persons in aviation. He also believes that he will sell airplanes to the club—he is now a dealer for Piper, Luscombe, *Ercoupe* and Stinson.

"If a man flies 50 hours per year, he will fly cheaper under the new club plan than the old," he says. "If he flies less than 50 hours per year he shouldn't be flying anyway. He can't keep up his skill. He's a bigger risk. And he's not a very steady customer."

Aviation has got to keep selling itself to every prospect. Flying costs have to be kept as low as possible. The only way flying can become a mass-activity is to encourage mass-flying—that's the way Carpenter looks at it. "If we could just get people to spend for flying what they spend for liquor, it would be a wonderful industry," he says. END

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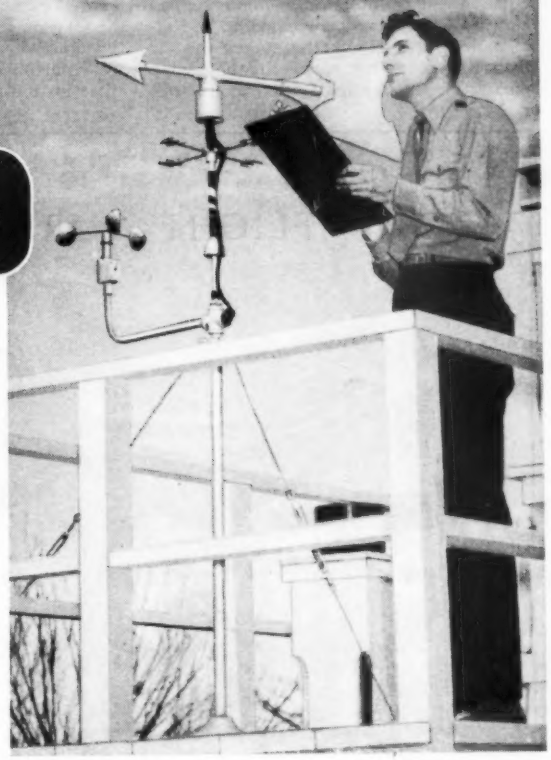

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I Learned About . . .

(*Continued from page 60*)

15,000 feet we entered the actual cold front. Ice formed rapidly on leading edges of the wings and the windshield. The airspeed pitot tube froze up and the airspeed indicator went dead. I immediately made a 180° turn at 15,000 feet and started back toward Memphis. Estes was again complaining about severe altitude effects and requested a letdown to at least 10,000 feet. I throttled back to 12 inches and 1,750 r.p.m. Shortly after starting the letdown the continued heavy icing froze the air filter on the carburetor intake in the nose of the airplane and cut off the air supply to the engine, which stopped suddenly. I switched to the alternate source of air that takes the air from the engine compartment; the engine picked up again and gave no further trouble. At no time was there any carburetor icing. Estes continued to watch the engine instruments and from time to time asked me to open the throttle to see if the engine was loaded up. But the engine continued to respond to the throttle without difficulty.

While I was busy with the problems involving the icing of the airplane and the change-over to an alternate source of air, the plane seemed to be building up airspeed rapidly. I throttled off to a point where the manifold pressure gauge indicated about six inches—just enough to keep the landing gear warning horn from operating. Occasionally I opened the throttle to check the engine for response. I descended about 500 f.p.m. by using the rate-of-climb indicator, which functioned at all times because the two static vent buttons were located on the sides of the rear portion of the fuselage. I am certain that an old-fashioned static vent system would have been iced out of commission.

The severity of the icing conditions caused an unusual effect. The lower cabin ventilating ducts were closed and the hot air supply was directed toward the inside of the windshield through the windshield defroster ducts. The propeller was picking up ice and apparently throwing it into the cabin air intake—because the ice was being projected out of the windshield defroster ducts in small chunks almost continuously. At times it was necessary for Estes to shield the duct on my side with a folded map so that I could devote proper attention to the instruments. The propeller kept picking up ice and throwing it off with subsequent surges of the tachometer.

When we reached 9,000 feet the air became so turbulent that I turned south to get out of the area as quickly as possible by using the tail winds on that heading. At that time the weather reports indicated a 400-foot ceiling and freezing rain at Tulsa and an 800-foot ceiling with snow at Springfield. The radio functioned perfectly, enabling us to determine our approximate position by means of the built-in directional loop. The airplane at this time had about an inch of clear ice on the wings and on the frontal area of the windshield. The sides of the windshield did not ice over.

We continued to descend until we reached approximately 3,500 feet where we found a hole in the clouds and spiralled down to about 2,000 feet, several hundred feet above the valley in which the hole bottomed. Tops of small mountains all around us were hidden in the overcast, and flight conditions in the valley were bad—a driving rain, temperature about 32° and turbulent air. The airplane was tossed around viciously by turbulence off the mountains.

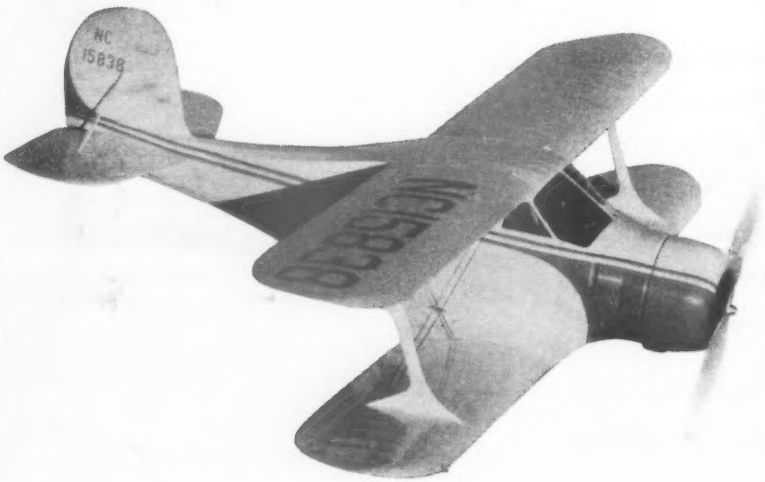
I decided then that our safest alternative was to land, even though the airplane still carried its heavy coating of ice. After hunting for a while in the valley we found a field about 10 miles south of Huntsville, Ark. It had a plowed strip in the middle, a beautiful green strip on the right edge and a poor green strip on the left edge. The right edge was not usable because a steep hill lay at the end of the final approach and so we used the left edge.

We made one pass at the field, went around, let down the landing gear and shut off the ignition switch. Then, because of the ice load on the wings, I used no flaps and greased the airplane in fast on three points of its tricycle gear. After rolling about 100 feet a cross gust hit the airplane, or the wheels hit a soft spot—and because the brakes would not respond on the wet grass, the *Bonanza* slewed over into the plowed field. The airplane decelerated rapidly and came to rest without apparent damage.

We looked at each other, took a long breath and relaxed. We turned on the ignition switch to use the cigarette lighter and each had a few long drags on a cigarette. There was a feeling of mutual congratulation in the cabin. We felt lucky to be safely on the ground even though the scenery was not attractive.

After a short smoke we decided to in-

FLIGHT CURIO—



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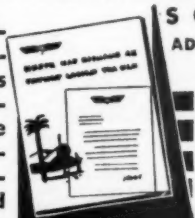

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spect the airplane for damage and stepped out into a torrent of almost freezing rain. We sank in mud up above our ankles. Slipping and sliding around the end of the wing we found that the nose wheel was completely submerged in the mud and that the main wheels were covered, with only the upper five inches of the tires extending above the surface. The propeller had stopped partly crosswise and when we rotated it we found we had less than an inch of clearance between the mud and the tip. It was a close call for the prop.

As we walked over to the grass we saw why the brakes would not respond. The water was above the tops of our shoes in the grass area. A regular stream from the side of a nearby hill was running across the grass.

We left the airplane and splashed over to a farm house a little over half a mile distant and found that the farmer and his family were still asleep. After we aroused them he was surprised to find an airplane on his field under those conditions, but was very cooperative. He and his brother got their tractor, went back to the airplane with us, and tied a chain to the tie down ring in the tail. They tried to tow the airplane with the tractor, but the tractor bogged down in the plowed field and could not pull itself out, even without the weight of the plane. Fortunately, the Ozark country is full of mules and the farmer went to his barn and returned with a four-mule team. We first towed out the tractor with the mules and then, by pulling on the tie down ring under the tail, towed the airplane out of the plowed field onto the grass strip at the side. After the airplane was on the grass, we hooked onto the top of the nose wheel strut and the team pulled it up to the front of the farmer's house, which was located on a little hill. I asked him to protect it from curiosity seekers, and after setting the brakes and blocking the wheels and installing the control locks, I rented the farmer's truck to go 42 miles to Fayetteville. At the Fayetteville Flying Service I bought 10 gallons of gasoline and then returned to the farm. The round trip took three hours over very rough Ozark roads. When I returned the front had passed on, the overcast had broken, and the sun had come out through broken clouds at about 6,000 feet.

Near the farmer's house was a sort of hogback field which was almost dry by this time. We hired five farmers at $1 each to pick the rocks out of the top of it so that we would not damage our propeller. We towed the airplane down to the field with the mules and set it at the very end of the hogback. At the other end of the hogback the trees stood up about 40 feet, about 600 feet away from the airplane.

The wind was blowing right down the strip at about 30 or 35 m.p.h. and I was certain that I would have no trouble clearing the trees. I started the engine, warmed it up, put down the flaps about 11°, checked the engine on both magnetos, and ran it up to full throttle at maximum r.p.m. Holding it there for a full 20 to 30 seconds, I released the brakes suddenly. The airplane surged forward and I held the nosewheel down for about 200 feet, until the airspeed indicator showed 50 m.p.h. I hauled back on the wheel and pulled the *Bonanza* off, and as soon as I knew it would stay off I pulled the wheels up and retracted the flaps. With its light load it climbed at an indicated rate of over 1,500 f.p.m., and the wind pouring between the hills lifted it almost straight up with an indicated air speed of about 70 m.p.h. The trees passed under the airplane at least 100 feet below us and we were on our way to Fayetteville to refuel and continue to Wichita, where we arrived at 6:30 p.m.

We should have been awarded the biggest rabbit's foot in Wichita after that mistake-filled day. Safely in Kansas, I thought over my errors in judgment and decided that two were major. In the first place we should never have tried to fly over a front at an altitude which could have serious effects on the efficiency of the plane's occupants. And second, we should not have rammed through a bad frontal condition using instruments in a single-engined airplane without de-icing equipment. I had let my better judgment be influenced by my desire to complete a trip on schedule. When I was forced to fly up to 16,500 feet to stay on top of the clouds, I had plain warning. At that point, while still flying in clear air, I should have returned to Memphis.

Both Estes and I were sharing a cabin with luck that day. And as we read newspaper accounts of havoc spread on the ground by that same storm, we each muttered a few quick resolutions about future flying habits. END

DO YOU KNOW..?

TEST your aviation I.Q. with this quiz by G. Sidney Stanton of the Civil Aeronautics Administration. Here's how to score yourself: 100 per cent and you're an airline pilot; 90 per cent and you're a flight instructor; 80 per cent, commercial pilot; 70 per cent, private pilot; 60 per cent, student pilot; 50 per cent or less, you're a Dilbert.

1. A pilot departs from A at 2 p.m., flying due south toward B (300 miles distant) at an airspeed of 75 m.p.h. At the same time another pilot departs from B, flying due north at the same airspeed. Wind is 25 m.p.h. from north. The planes will meet at (1) 3:30 p.m., (2) 4 p.m. (3) 5 p.m.?

2. A pilot knows that the maximum specified r.p.m. for his 90-h.p. engine is 2,500. Checking power on his ground run-up preparatory to take-off, he obtains a maximum of only 2,250 r.p.m. This indicates his engine is probably (1) too warm, (2) too cold, (3) operating properly?

3. Rough air (bumpy flying) is generally associated with which of the following cloud types: (1) stratus, (2) cumulus, (3) cirrus?

4. To recover from a bad bounce on landing, a pilot should immediately advance the throttle and (1) move elevator control forward, (2) move elevator control backward, (3) hold elevator control unchanged?

5. Plane A leaves Boston at 7 a.m. flying due west at a ground speed of 90 m.p.h. At 8 a.m. plane B takes off from Boston, flying the same course at a ground speed of 120 m.p.h. Plane B will overtake plane A at approximately (1) 10:15 a.m., (2) 10:45 a.m., (3) 11 a.m.?

6. When an airplane is flown in level flight at its maximum safe speed (never-exceed speed) its weight is supported by lift gained from (1) reduction in atmospheric pressure of air above the wing, (2) increase in atmospheric pressure below the wing, (3) a combination of reduction above, and increase below the wing?

7. In making final approach for landing, the elevator trim tab should be moved toward which of these positions: (1) nose up, (2) nose down, (3) level flight?

8. If a pilot departed from San Francisco (latitude 38°) flying a constant compass heading of 090°, he would reach the East Coast at approximately (1) Boston (latitude 42°), (2) Norfolk, Va., (latitude 37°), (3) Jacksonville, Fla., (latitude 30°)?

9. If a pilot wished to leave Chicago and fly by compass to arrive at the true north pole, he would have to follow which of these compass headings: (1) north and east, (2) north and west, (3) north and south?

10. When landing a lightplane in a gusty wind it is preferable to use a (1) full stall, power-off landing, (2) full stall, power-on landing, (3) wheel landing?

ANSWERS ON PAGE 90

The Cessna 195

(Continued from page 55)

ing the baggage compartment door. Instead of having a conventional lock on that door, they have it controlled by a push button set flush into the cabin door frame so that the compartment door can be opened only when the main cabin door is unlocked and open. The opening of the cabin door also operates an automatically retracting step.

Climbing into the pilot's seat for the first time, two strong impressions came to me: (1) the instrument panel is both very complete and very nicely laid out and (2) forward visibility in the tail-down position is pretty bad. The latter is the price Cessna is prepared to pay in order to be able to use the Jacobs engine. They have had years of experience with that particular engine and feel very strongly that it is the most trouble-free engine they could have got for that particular airplane.

The fact remains that it *is* a radial, and it gives the pilot accustomed to opposed-cylinder flat engines quite a shock when he finds himself squinting ahead through a narrow slot along the left side of the fuselage. It was that lack of visibility, I think, that caused me my greatest trouble while flying the 195. But I'm sure, too, that any pilot could become accustomed to it in a very few hours—though that still wouldn't increase his actual visibility any.

Except for that lack of visibility, the 195 is a beautiful airplane to handle on the ground. It's difficult to get the tail to come up even when applying the brakes hard right after landing, so you can taxi the 195 about as fast as your common sense permits. You can slam on one brake full and turn so sharply that one leg of the landing gear will flex and let a wing dip slightly toward the ground. The tail wheel, of course, is steerable. You get the strong impression that this airplane could operate into and out of the roughest fields ever used by any airplanes anywhere. The plane and the gear will take almost anything; you probably could tear the tires to shreds without hurting the airplane itself. Similar startling things already have been done with the thousands of 140's and 120's that also use this excellent landing gear.

Before-takeoff procedures are fairly simple for so large a plane. The two wing tanks (which hold a total of 76 gallons) can be checked on the dual gauge in the cockpit, although it always is best to climb up and look directly into the tank; never trust a gauge, even an electric one like that in the 195. The fuel shut-off valve is on the left cockpit wall, beside the pilot's leg. On the column for the throw-over control wheel are the elevator and rudder trim tab controls. The elevator is set by turning a vertical wooden wheel to set an arrow indicator. The rudder is trimmed with a small knob.

The Cessna people make much of the fact that there is only one added operation for the 195 pilot to concern himself with that he wouldn't find on the small 140. That's the control for the constant-

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speed propeller. Such simplicity is, of course, an excellent sales point, providing you get suitable performance at the same time.

With the propeller knob (it's the same vernier-push button handle used for the throttle on the *Bonanza*) full in, you simply steer the 195 into the wind and open the throttle wide. I was told not to push forward on the wheel to get the tail off the ground; just hold it in neutral and let the tail come up by itself. The first thing I noticed immediately after pushing the throttle wide open was the tremendous surge of power and high degree of torque. I had to hold hard right rudder throughout the take-off.

Best climbing air speed is 100 m.p.h. The 195 is very sensitive to its elevator trim tab, which can be quickly set to hold that climb. Despite the fact that it was an extremely hot day (over 100°) when I flew this airplane, our rate of climb was well over 1,000 f.p.m., although there were only the two of us in the ship at the time.

I climbed to 3,500 feet where I throttled back and slowed up the ship. I stalled it first with flaps up and power off; the airspeed indicator hovered at about 55 m.p.h. This reading, incidentally, is inaccurate because of the angle of the airspeed pitot tube at the time of the stall. Cessna's officially-calibrated stalling speed is 64 m.p.h. I stalled the airplane again, this time with flaps down. The airspeed indicator read 50 m.p.h. The flap, incidentally, is electrically operated and can be stopped in any position simply by returning the switch to neutral. Full flap is 45°. At no time during these stalls did the airplane show any sudden tendency to fall off; the wing could be held level at all times, although the rate of sink was quite high in the stalled position.

Maneuverability in the air is excellent, and the controls are light and easy to operate, even for a woman. Visibility in the air also is good, especially forward, with the nose down in level flight. But it's a little difficult for the pilot to see out the left side window; I had to bend over to look out before making a left turn. The top of the side window was at about the level of my chin.

It is obvious that there is plenty of sound-proofing in the 195. The noise level in cruising flight is comfortably low; Cessna is having a minor problem at the moment with the sound of the air rushing past the doors and windows. And, when stalling the airplane, there is a shrill whistle that comes through one of the cabin ventilators—possibly a handy stall-warning device.

CESSNA 195

Approved Type Certificate No. 790

One 300-h.p. air-cooled Jacobs engine

Wing span	36 ft. 2 in.
Length	28 feet
Height	7 ft. 2 in.
Gross weight	3,350 pounds
Empty weight	2,025 pounds
Wing loading	15.4 lbs./sq. ft.
Fuel capacity	76 gallons
Baggage (full seats)	220 pounds
Top speed	180 m.p.h.
Cruising speed (75% h.p.)	165 m.p.h.
Stalling speed (flaps up)	64 m.p.h.
Range fully loaded	Over 700 miles
Service ceiling	19,000 feet
Rate of climb	1,210 f.p.m.

Source: Cessna Aircraft Corporation.

For a check on the 195's cruising speed, I flew it over a triangular course from Wichita to Hutchinson to Newton and back to Wichita. That is just over 100 miles. This flight was made at 7,000 feet above sea level. Manifold pressure was 22 inches, the engine was cruised at 2,000 r.p.m., and indicated air speed was 155. Ground speed for the course worked out to almost exactly 165 m.p.h.

As is usually the case with a strange airplane, I had more difficulty landing the 195 than anything else. I would misjudge the proper approach altitude, largely because of the airplane's higher-than-usual rate of sink. But with full flap you can aim the airplane at that part of the runway you want to land on, then land there. My worst problem of all was in holding the airplane straight down the runway once I got the tail down in the landing position. The restricted forward visibility was most noticeable at this point. But you just learn to get the plane set in its tail-down position, then you see as much as you can out the side while the plane settles itself onto the runway. I suspect that, with a couple more hours of practice, I might get the technique pretty much under control.

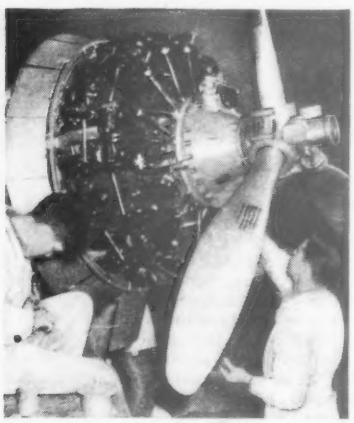
Cessna has worked out another novel device for making the 195 easy to handle. After taxiing up to the line and cutting the engine, you pull back on the parking brake handle which not only locks the wheels, but snaps the ailerons and rudder into neutral and holds them there.

Present plans call for a sales goal of between 300 and 400 of these airplanes a year—mostly the 240-h.p.-Continental 190 selling for $12,750. It will be interesting to see if there is that much of a market for this interesting airplane. If there isn't, it probably will be due only to the price; the airplane itself is very comfortable, solid, easy-to-fly, and turns in good performance.

MAX KARANT

Answers to Do You Know? on Page 88

1. (2). The wind does not affect the airspeed of the planes. After each plane has flown for two hours it will have traveled 150 miles through the air, and both will meet at that time.
2. (3). For sea-level engines with fixed-pitch propellers the maximum r.p.m. obtainable on the ground is 5 per cent to 10 per cent less than the maximum that will be developed in flight.
3. (2). Cumulus clouds are formed by rising air currents which produce strong up and down drafts.
4. (1). Increase in power will produce a downward force on the tail surfaces, placing the plane in stalling attitude. To prevent this, the stick should be moved forward.
5. (3). In four hours plane A flies 360 miles. In three hours plane B also flies 360 miles.
6. (1). At very high speed the lift produced by reduction in pressure above the wing is more than adequate to support the weight. To prevent the plane from gaining altitude it must be nosed down so that the wing's leading edge is lower than the trailing edge. In this attitude the wing gains no support whatever from the impact of air upon the under surface.
7. (1). When power is reduced the nose will drop, and the elevator trim tab should be turned toward "nose-up" position.
8. (3). During the entire flight the magnetic variation would be easterly, causing the compass needle to point to the right of the true geographical direction. Consequently, on this transcontinental flight the pilot would fly almost 500 miles south of the parallel from which he started.
9. (3). To arrive at the north magnetic pole he would fly a north compass heading. From the magnetic pole to the true north pole he would fly a compass heading of south, although the geographical direction would still be north.
10. (3). The wheel landing permits contact with the ground while the plane is under complete control, thus avoiding the possibility of an inadvertent stall which might be caused by a gusty wind.



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Airman's Lodge

(*Continued from page* 41)

Harriman when he was ambassador to Russia, to manage the port. Wright whipped the old farm buildings into shape, converting barns into a shop. He uses the farm house as a combination home, office, and ready room, but eventually will replace the house with an administration building. Another barn, still full of chickens, will be turned into a restaurant and a lounge.

The airport's eight planes are kept in a 100- by 40-foot Quonset-type hangar behind the larger barn.

Rates at the hotel run in the upper brackets—from $16 to $22 per day, including meals. But the recreation program is worth it: golfing on an 18-hole course, tennis, softball, swimming in a sandy-beached lake or a pool still abuilding, horseback riding, hiking in the nearby Catskill foothills, or flying over some of New York State's roughest country.

Hunting and fishing are excellent in season, and facilities are available for winter sports such as skating, skiing, tobogganning, and sledding. So much is provided, including a night club with continual dancing to one of three orchestras, that the rates aren't as high as they seem at first glance.

At present, the airport operates smoothly under the direction of Wright and his two assistants—Jack Katstra, 36-year-old ex-bomber training pilot and test flyer, and Lee Yager, ex-Navy PBY pilot. Wright has logged over 6,500 hours, Katstra over 4,500 hours, Yager over 2,000 hours. And Jim Parrish, the A & E mechanic, flew 40 missions in B-25s before joining the airport crew. Parrish and Kenneth Smith form the mechanical team for the port.

There's an air of casual industriousness about this port, run by a group of experienced aviation and hotel men. They have their eyes to the future—and find that the present is taking care of itself.

Fifteen students are taking lessons now in Grossinger planes (two Luscombes, an Aeronca *Champion*, two Cessna 140s, and three Stinsons). Flight rates are low: $6 and $8 in the Aeronca, $7 and $10 in Luscombes, $9 and $12 in Stinsons and Cessnas. For charter flights to New York (87 air miles from Liberty), the charge is $15 per person, or 20c per mile with no return fee required.

The future? Big plans are underway at Grossinger's hotel-airport. More planes will be added as tourist trade increases. Non-scheduled intra-state airlines will fly guests to the port, because unlike many resorts there's no need for an automobile once a guest arrives. More students will be added, and the Cessna and Stinson dealerships exploited.

Nestled in a fair weather belt between the Alleghenies on the west and the Catskills on the east, this hotel-airport is pioneering on the aviation front. END

Aviation's Vagabonds

(*Continued from page* 21)

blankets spread on the grass along the edge of the field.

Don't think, just because you're qualified, that you can turn vagabond just by applying. Jahelka doesn't have enough planes to go around and after two years experience he doles out assignments to tried-and-true veterans. There have been times when pilots weren't reliable. One pilot breezed in, sold Ed a bill of goods, and left in a plane for Raton, N. M. Days later, the police found him flying around selling radios and having a wonderful time.

Another pilot started for the Middle West and was discovered vacationing in Connecticut. A third delivered the planes but always borrowed money from customers at the end of flights.

But if you are selected for a vagabond delivery by the cautious Piper official, you won't move into a highly remunerative position. Pilots are paid only 7½ cents per mile. Jahelka himself is the first to insist the work doesn't pay. There are, however, a few compensations which help the vagabond pilot. He gets a tank of gas before take-off and is paid in advance for mileage.

Departure procedure is simple. Ed checks your log book, gives you some papers for the dealer or new owner, and

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warns: go directly to your destination, don't fly passengers, don't stunt, remember the engine is new, keep the plane as clean as possible, notify Lock Haven if you are weathered in over 24 hours or have an accident. And get a signed delivery receipt.

Odds are that vagabonds won't have accidents. Since the war, only two tenths of one per cent of deliveries have ended in major crack-ups and only three tenths of one per cent in minor crack-ups. The only fatality was not the result of a crash. Joseph Barber, ferrying a *Cub* to Anchorage, Alaska, safely made a forced landing near the end of the flight. A companion pilot saw him walking around the plane but rescue craft were able to find only the *Cub*. Only logical explanation for his disappearance was that hordes of mosquitoes, prevalent during that season, drove him frantic. He may have tried to get out of the wilderness on foot. No trace of him was ever found.

Occasionally vagabonds make better than modest profits by delicate maneuvering. Plant-wise pilots like to fly a Piper to the Middle West, arranging in advance to fly a Beech or a Cessna back. Piper is the only company that pays per-mile rates (most factories leave payment up to dealers) but even a return trip at cost saves bus or railroad fare.

Longest vagabond flights on Lock Haven books are several 4,000-mile trips to Alaska. Last summer, 17 *Cubs* were delivered to Anchorage. Rivaling these flights are a series made by John C. L. Adams to Panama—some 3,700 miles. On one of the Panama hops, in 1936, three girl vagabonds flew planes with him.

Piper itself occasionally sponsors return trip flights coordinated with its Ponca City, Okla., assembly plant.

About 20 per cent of regular vagabond flyers are girls. Aviation history was made by a mass flight of 93 trainers on August 30, 1946, from Lock Haven to Akron—an aggregate of 23,000 plane miles of flying in one day. The girls brought the flotilla into Akron and landed in formation, 15 planes at a time. Without radio, they got all planes on the runways in 27 minutes. Five women also delivered the first military lightplanes (0-59's, later L-4's) to Dayton in the fall of 1941.

Most colorful personality and probably best money-maker on vagabond lists is Jinks D. Harris, ex-movie villain (1919-21), bank robber (1922), inmate of San Quentin (1922-29), and evangelist (until now).

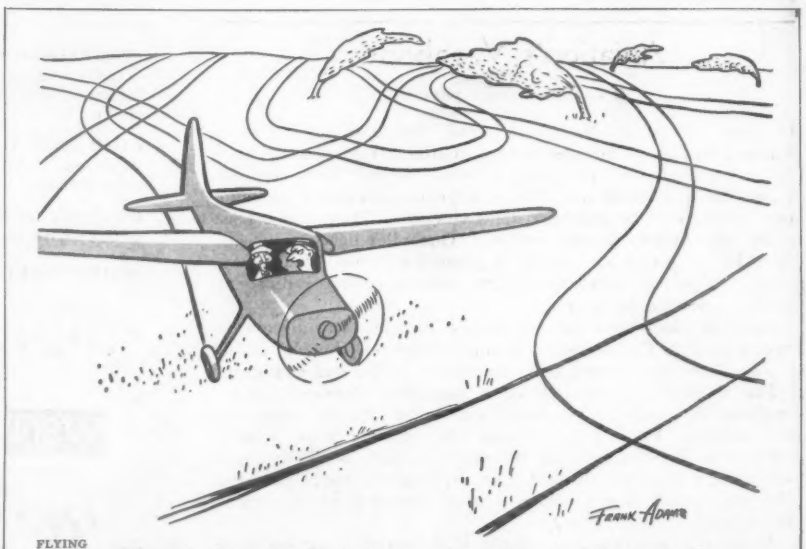
Jinks starred in Western thrillers with Universal, and then robbed a bank in Piru, Calif., with a gang of 16 gunmen. In San Quentin prison, he got religion. Then, in 1938, he learned to fly in Los Angeles and became a Piper vagabond some time later. He holds revival services when he ferries planes—and often draws large crowds.

But if plans at Piper crystallize, the most impressive vagabonding history is yet to come. William T. Piper's new *Vagabond* may revolutionize putt-putt transportation.

The new plane will be a two-place Piper *Cub Special*, with a new instrument board, a new interior—and a time clock taxi meter. First *Vagabonds* off the line will be put on display at Piper dealer airports with the explanation that you can rent it to fly anywhere you want—and leave it there. At the end of the flight the *Vagabond* will be put into the hands of another Piper dealer for similar rental. Each dealer will get a commission on his rental but will not be faced with the problem of getting the plane back. Pilots will not have to bear round-trip costs for a one-way trip. Piper will keep title to the planes.

"Railroads don't own and maintain freight cars or Pullmans," Mr. Piper says. "Why should fixed-base operators be burdened with cost and upkeep on a rental plane?"

If the plan works, *Vagabonds* will be busting out all over. Piper executives, pointing to pilot reliability and flying habits shown in their vagabond ferrying program, believe that it will. END



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An Open Letter to City Fathers

(*Continued from page* 43)

TOWER COURTESY

The first impression a visiting pilot gets of your city is the manner in which he is greeted during his approach and landing. Often he is a stranger, coming into your airport for the first time. Often he is tired after a long flight, in a hurry to "gas up and get on." He will appreciate courtesy and consideration.

Your airport should have a control tower if the traffic warrants it. The voice in the tower should be friendly and concise. The tower call should be answered promptly and directions should be simple. Your operator should be ready and willing to repeat the information as many times as necessary. If a pilot is asked to "go around again," the request should not be made at the very last moment except in emergency. Recently the author was told to "go around again" because the tower operator wanted to show a friend "how much noise that type airplane makes in low pitch."

The tower operator should remember that his job is not through when the airplane is on the ground. Often the pilot is on a strange field—his visibility is limited. He needs to be told *where* to turn off the landing strip and *where* to taxi for service or storage. He should not be directed to one area, where he kills his engine and climbs out of the plane only to discover that he should have been sent to some other spot. It's a lot of trouble to get an engine started again and work your way across a strange field.

GROUND CREW COURTESY

After the tower operator has directed the visiting pilot off the runway and onto the taxi strip, he should be met by a member of the ground crew on a motor-scooter. No airport is too small to provide this courtesy. Scooters are not expensive. The man on the scooter should ride to the pilot's left and take him briskly toward the service area. Before the pilot stops his engine, the man should come around to the side of the plane and determine the pilot's requirements. The man should be friendly, cooperative, cheerful and polite. This type of man will not cost your airport any more than a grouch. The pilot's registration board should be handed to him when he steps out of the plane, and should be kept by the man on the scooter. Too often a visiting pilot must walk across the field to the registration office, which increases the time he must spend on the ground. Too often he has to walk a great distance in another direction to pay for his gas and oil.

If the pilot and his passengers require a taxi, some member of the ground crew should tell him how to get one—or better still, if no cost is involved, get one for him. The ground crew should assist in unloading the passengers and the baggage. If this creates an extra expense, figure it into the hangar or servicing charge. Many pilots will be pleased to pay the small difference in cost.

The line men should remove the bugs from the windshield without the pilot being obliged to go down on his knees for the service. Excess oil should be wiped off the engine and cowling. Credit cards should be handled on the spot, as should cash payment. This will permit the pilot to "get on" with his flight.

Some time ago the author visited a large airport in Syracuse, N. Y. After landing, he received no taxi instructions, no gas or service directions even though several airport employees were sitting on the pavement in front of the hangar within 100 feet of his idling ship. On stopping the engine and climbing out of the ship, the author was told (a) that Joe had the keys to the gas truck; (b) that nobody knew where Joe was; (c) that the airplane couldn't be left there; (d) that the city provided no tie-down facilities; (e) that if the author stayed overnight, he did so at his own risk; (f) that they weren't just sure where he should park but thought it was "up that way somewhere." All this time not one man got up off the seat of his pants, although the author found out later that all but one of the men were on the city airport payroll. All this, mind you, at an air-

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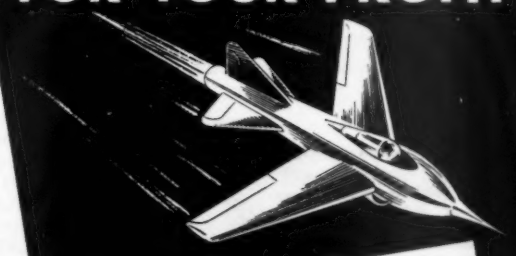

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port serving a city of 250,000 people. Needless to say, the author now plans his flights to miss Syracuse.

TIE-DOWN FACILITIES

It is understandable why construction difficulties and high building costs are slowing down the construction of adequate hangar facilities. But there is no earthly reason why even the smallest municipal airport cannot supply ropes and stakes, and space, for tie-down. No pilot will object to paying a nominal fee ($1 to $2) for such service, but the pilot expects his ship to be *tied down for him.* He is flying in good clothes with limited baggage, and the airport attendant is in coveralls. He expects to be directed intelligently to a tie-down spot without endangering life and limb. Recently the author was directed over an iron tie-down stake so high that it would have hit and damaged the propeller. Only well-learned caution on the pilot's part avoided the accident. The ground-crewman seemed perfectly content not only to permit the accident to happen but to bring it on by hand signals.

CARE OF AIRPLANE

Ground-crew men and service men should try to protect the plane against damage by gas trucks, gas hose and nozzles, and other airplanes, and should try not to drip oil over the windshield and cowling. They should be provided with clean rags, and they should have the energy to use them. Too many gas men are still climbing on new airplane wings with hob-nailed boots. Too many hangar men are still wedging airplanes into hangars as if they were made of rubber, or pushing and pulling on wing tips and stabilizers as if they were built like the Empire State Building.

WINDSOCKS AND LANDING TEES

Your airport should have adequate windsocks and landing tees. They should be prominent and should, in the case of manually-operated tees, read in the same direction.

WARM-UP AND RUN-UP AREAS

Control tower operators and ground-crewmen should be careful not to direct aircraft to gravel or cinder areas for run-up. This is injurious to plane and propeller.

AIRPORT BUILDINGS

Airport buildings — especially lunch rooms and rest rooms — should be clean and modern. They need not be large, in the case of small airports, but cleanliness is all-important.

PROVISIONS FOR HANDLING FIRE AND CRASH

Accidents still happen. Sometimes prompt attention prevents serious injury. Your airport employees should be trained in prompt and efficient meeting of emergencies. Fire equipment and first aid should be available at even the smallest airport.

REPAIR SERVICE

Within the limitations of your airport traffic you should try to provide adequate mechanical and repair facilities. Simple things like booster-pumps, wing lifts, tail-wheels and shock cords should be available . . . also qualified mechanics. Most private flyers are not competent to make their own repairs and adjustments.

TRANSPORTATION TO TOWN

Often it takes a visiting pilot longer to call a taxi and get into town than it took him to fly to your city in the first place. Often the cost, because it is outside the city zoning ordinance, is excessive. You should look into these rates and facilities. A visiting pilot is at the complete mercy of your local transportation facilities.

FIELD OBSTRUCTIONS

Much has been written on this subject. Lives depend on how many of these hazards can be removed.

RATES

It has been stated that the pilot expects to *pay* for what he gets. Often this rate of pay is very much out of line with similar facilities in similar cities. Check the rates your airport operator is charging. He may be scaring potential visitors away.

RESUME

Here are the things pilots want most from your airport:

a. Courtesy.
b. Prompt servicing.
c. Consideration for the aircraft.
d. General assistance.

Pilots will reward you with:

a. More frequents stops at your city.
b. Good words for your treatment of them.
c. More money spent with your merchants.

Above all, insist that your airport personnel be courteous and cheerful. It probably isn't CAA radio procedure, but the author got a tremendous kick the other day when a cheerful feminine voice from the Philadelphia tower said at take-off—"63467 off at 10:30. Good morning!" END

Can Flying Be Standardized?

(*Continued from page* 59)

such as the reversed-control theory of the steep turn, in which "top rudder" was used. Each inspector then re-examined and flight-tested each rated flight instructor in his region and supposedly brought up the standards to a given level.

During the war, both the Army and Navy adopted standardized programs. Patter books and flight maneuver sheets were written so that instructors' patter, or verbal instruction, could be similar; boards consisting of experienced pilots were organized, their job being to fly from one flight center to another checking flight instruction, methods, and techniques.

The Civilian Pilot Training Program—later War Training Service—did much to standardize texts, syllabi, and flight manuals. Flight instructors were carefully checked and no expense was spared to impart knowledge. There were even two types of WTS schools: one for the Navy, one for the Army, and each taught the enrolled cadets the way the Navy or Army wanted.

Yet somehow variations existed and

remained. Military instructors complained that they were receiving students from CPT-WTS programs who were not flying the Army or Navy way. This is no criticism of the WTS program because often it was not possible to standardize an instructor.

At a certain Naval Flight Instructor School a pilot was teaching his students to perform a snap roll in a way that brought prompt, sharp criticism from the Naval officer in charge. When the officer admonished the pilot to teach his student the Navy way, the pilot replied that he had always done the maneuver in a certain manner and he'd be this-and-so if he'd change any part of it now!

Still another amusing example occurred when a CAA inspector was re-rating a civilian pilot as a flight instructor under the CAA re-rating program. After the hard siege was over and the inspector had written out the man's ticket with the coveted rating, the pilot went out of the office, explaining to a friend *sotto voce,* but just loud enough for the inspector to hear, "now I'll go back to Podunk and teach 'em as I darn well please!"

At present the CAA is spending thousands of dollars in an instructor program in Knoxville, Tenn. During the war, literally hundreds of thousands of dollars were spent in scientific research to determine the meaning of instructors' terminology, and to standardize his "patter." Grants in aid to the National Research Council by the CAA enabled psychologists to attempt to determine correlation between students' reactions and stimuli. Measurements were made in order to predict flight aptitude. Recording devices were placed in airplanes to record instructor-student conversations; motion picture cameras were installed to record the instrument readings at the time conversation took place.

In reading over the carefully mimeographed reports of these tests, the lasting impression is this: each report comes to no definite conclusion except that more money is needed to carry on further research. It leaves the reader with this thought: Can flying be standardized? And even if it could be, are we on the right track?

Let's take still another illustration. During the war hundreds of men with the degree of Doctor of Psychology entered the military service. Although most of them were non-flyers, they attempted by every manner of means to standardize flight instruction, not realizing that every pilot is an individualist of the nth degree: if he were not, he wouldn't have gone into aviation, a profession which demands initiative, clear thinking, and aggressive action. Any attempt to regiment pilots is doomed to failure at the outset and to this day you cannot find two pilots who fly alike.

Yet the psychologists failed to understand the men with whom they were working and they were exceedingly clumsy in their methods. They not only failed to reach their objective but the net result was that all pilots with whom I have spoken have a universal and common dislike of psychologists and their methods. The fact remains that if this group really knew their business, they would not have antagonized every pilot with whom they came in contact!

Instead of wasting further money and time in analyzing primary maneuvers, we should be making an intensive effort to find out what it is that makes some pilots accident-prone. In a recent discussion with experienced pilots, it was unanimously agreed that all flying—even airline work—is 50 per cent technique, and 50 per cent headwork. One pilot went so far as to say 80 per cent headwork! Good techniques in landings, turns, climbs, and so forth make for a smooth pilot but they are relatively unimportant according to all of our statistics of fatal accidents.

Fatalities occur primarily from the stall, which is another way of saying that the worst thing a pilot can do is to dope off, to show lack of headwork, or to be thoughtless. Yet these things are not brought home forcibly enough to the average student.

To help the student understand this we don't need standardized flight maneuvers, although it is nice to have them in order to make teaching easier. We need, instead, standardized syllabi, not only in hours taught and in basic execution of maneuvers, but in greater emphasis on stalls, slow flight, and stall recovery. This will permit more emphasis on safety in flight and good headwork.

Added to that, we need the stimulus of brisk, forceful in-

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struction. The child who fears a fire most is the one who has been burned by it; the student who avoids stalling is usually he who has been briskly taken to task every time he has stalled or "doped off." In over 1,000 hours of flight instruction I have found forceful instruction pays . . . yet this too was decried by the psychologists as "overdone," their advice being to crack down only as a last resort.

It should be pointed out that educational psychology in this country to date has been a tragic, dismal failure. Practical evidence may be found in the fact that high-school graduates were so poorly trained that the services were compelled to give their cadets refresher courses in the three R's! Present methods of teaching, both in school and at the airport, are leaning toward the lax, lenient, paternalistic manner. Yet there is no element of softness at the end of a low-altitude spin.

Can flying be standardized? The answer is NO—not to the extreme that is being attempted. Every pilot has a pet way to land, turn, do eights, or spots, and he thinks his way is the best.

Even flight instruction cannot be standardized. Each instructor is not only different from another but he differs from himself from hour to hour and day to day. If he teaches the same thing in the same way, day after day, he either runs dry or goes crazy. Two flights are never exactly the same; students require different handling, one being quite sensitive to rebuke, another being thick-skinned.

But some kind of standardization in flying is both necessary and possible within the limits described above. We can and *must* have standardized syllabi, in which the emphasis in flight instruction is placed on safety in flight: avoiding stalls, prompt and correct reaction and recovery in stalls, better cross-country techniques, and *good thinking*. We can crack down on the automobile type of pilot who buzzes communities, breaks flying rules, has continual accidents, and in general flies with his brains in reverse pitch.

Once we have achieved a certain standardization in steep turns, eights, etc., let's cease to worry about it. Any pilot who can fly smoothly, with the ball-bank centered, can fly through any maneuver with the variation that a particular instructor or examiner desires, and pass the test. But if he has had sloppy, careless, paternalistic instruction and has never formed the habit of flying safely he's a bad risk even though his steep turns don't vary a foot and his co-ordination is 100 per cent perfect.

Standardization has become a fetish—and when carried beyond basic methods, concepts and techniques, leads to mechanical thinking and doing, the bane of modern education.

Standardization for the sake of standardization is wrong. Let's break away from this much ado about nothing, and direct our efforts toward an end that is meaningful by methods that are both productive and practical. END

"Perhaps our Mr. Edwards in converted bombers could be of service then!"

Ranchaero

(*Continued from page 27*)

is 18, and Michael, 15, waiting for his 16th birthday to solo.

All the partners are in their 40's or late 30's. Ed Fletcher was 46 when he soloed after nine hours' instruction last year. "We didn't set too much stock in all this talk about flying being a young man's game," he remarked. "And owning the ranch was all the incentive we needed to learn how to fly. With our ranch, we have a place to fly to, a place where we can go to relax after a week-long grind in the city."

By air the flight from Lindbergh Field, San Diego, requires only 45 minutes across picturesque and rugged country. By auto over tortuous, winding mountain roads, the journey is an exhausting 2½ to three hours. (Airline distance from Lindbergh Field is 62 miles, on a magnetic heading of 45°. Exact location is latitude 33° 14', longitude 116° 15'.)

The arrival of a plane is a great event at "Borrego Air Ranch." Its isolation is complete. There are no phones and there is no advance warning as to who'll be dropping in.

Since the "Borrego Air Ranch" airstrip was built, the desert has teemed with weekend activity. One Sunday, 19 planes with more than 50 passengers descended on the ranch in a breakfast hop. Five to 10 planes are usually there on weekends.

The partners' enthusiasm for their aerial dude ranch has infected their friends. A small community is in the making around the airstrip. The Fletchers and Steens have sold several one-acre parcels out of their original 160 acres. When materials become more plentiful other homes will be built, with space alongside for eventual construction of T-hangars.

Ultimately a north-south runway criss-crossing the present east-west runway will be laid out. Taxi strips will be installed. At present, however, it has no fueling or repair facilities.

An underground water supply is available the year around, fed by streams from the mountains. Power lines have just been extended into the area by the San Diego Gas & Electric Co. Only a few miles away is the townsite of the contemplated Borrego resort expected to rival Palm Springs, the millionaires' playground to the north. Whereas now the major "activity" is just sprawling out and soaking up the sun, it won't be too long before swimming pools, a golf course, and even a flooded area for duck hunting will beckon to sportsmen flyers.

You can't blame the Fletchers and the Steens for being sold on aerial dude ranching. They believe that any family of moderate means can also enjoy the pleasures of remote isolation—pleasures which only flying can make easily attainable.

END

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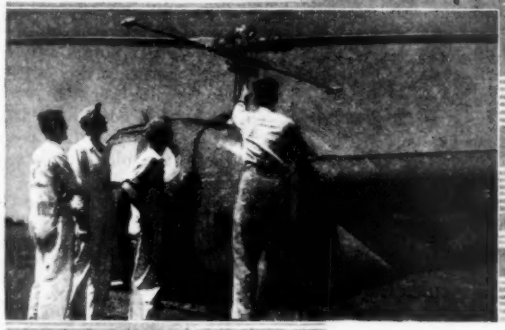

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Report from Washington

(*Continued from page 46*)

planning charts and the airport directory have been dropped. Replacing them will be two-color radio facility charts which will be brought out separately by the Coast & Geodetic Survey. C&G's chart expert, John D. Kay, claims that these will be as timely as the old charts, though how color can be printed as quickly as black and white is a mystery which private publishers would give their shirts to know. Mr. Kay also claims that the job can be done in color cheaper—another printing miracle. CAA will save $41,000 but experts estimate that C&G may spend twice that sum on the chart job alone.

Another mystery pops up when you delve into how the change came about. For the first time since war's end, the Aircraft Owners and Pilots Association, representing lightplane flyers; the Air Transport Association, representing airlines; the Army, the Navy—everybody agreed that the old CAA version of Airman's Guide, despite obvious need for improvements in typography and charts, was okay. Yet these groups were not told of the new deal until Fred E. Lee, former Navy officer and now CAA deputy administrator, called them in and informed them that they must either accept it or risk having nothing at all. CAA Administrator T. P. Wright cautioned Lee to get advice of all hands before doing anything, but Lee's presentation was on an or-else basis. Lee claims that AOPA, ATA et al are on the record approving the change and welcoming the curtailed Guide. Representatives of the groups in question say flatly that they did no such thing. "We asked for an improved Guide—yes," an AOPA spokesman points out. "Instead, we have an entirely new set-up which will not give pilots what they need in one package and will cost them $10.50 instead of $7.50 annually." Lee responds that the price of the old Guide would have been upped anyhow . . .

P.S. Will the Guide be restored if the new plan doesn't please pilots? Mr. Lee hazards no opinion but adds that he is a private pilot and is very pleased indeed . . .

P.P.S. Another assistant to the administrator, this time for aeronautical charts, has been added to CAA's roster. Guess who? None other than Mr. Lee's friend John D. Kay.

Kiddie Corner

Saddest character in aviation recently was a young lady named Patricia Wheelless, aged 13, of Dothan, Ala. Pat received a very formal order from the Civil Aeronautics Board, Washington, D. C., saying that she couldn't have a license no matter how good a pilot she is. Age minimums are age minimums and the Board officials refused to make an exception. If it is any consolation to Pat, we learned privately from Board men concerned with the case that they hated like sin to turn her down, especially after all the nice things her dad said about her. He reported that his 96-pound, 66-inch daughter (brown hair, grey eyes, first year in Junior High School), flies better than many a man much older than she. She was ready to solo 'way back three years ago, when she was only ten. This testimony came from an authority—her dad's an instructor—and was backed up by her mother, who also flies. In light of Pat's record and the parental testimony, we asked CAB why they didn't okay her. Their plea is self-defense. If they license Pat, they will be swamped with as eager and numerous an army of youngsters as ever stormed a movie star for autographs. We wouldn't want to hint at what the youngsters should do to get the minimum lowered but Congress is still a court of appeal for citizens, regardless of age, if they want to throw out a Federal rule which is standing in the way of their progress.

ILS-GCA (Cont.)

Now that Army has joined Navy in making Ground Controlled Approach (GCA) standard instead of CAA's Instrument Landing System (ILS), there remains but one official voice that puts ILS ahead of the other system. It is the voice of CAA as personified by Administrator T. P. Wright, who again came to the defense of the ILS in a recent official statement . . . As he spoke, GCA continued to pile up a brilliant safety record. As of June 24, 1947, for example, GCA units in the Azores saved 240 Army personnel, plus four B-29's, nine C-54's, a C-47 hospital ship which had 50 gallons of gas aboard when the wheels touched, and a B-17, which sat down under a 200-foot ceiling. Canada has also turned to the radar approach system and is sending RCAF pilots to the U.S. to train on it.

Mr. Alison

The rumor we spoke of last month that George A. Stone might succeed William A. M. Burden as assistant secretary of commerce for air failed to become a fact. The post has gone to youthful John R. Alison—he's not quite 35—of Florida and New York, an ex-AAF colonel with a number of Jap planes to his credit. Graduating from the University of Florida in 1936, he was commissioned the following year and saw service in London, Russia, China, Burma, and the Pacific. He saw active combat service under General Chennault in China and was deputy commander of the aerial invasion of Burma. He also participated in the landings in the Philippines and the attacks on Japan from Okinawa. He has a fistful of combat decorations including the Distinguished Service Cross, Distinguished Flying Cross, Silver Star, Purple Heart, Legion of Merit, Air Medal and the British Distinguished Service Order. Since resigning his AAF commission he has been a private consultant on aviation problems with headquarters in New York City. CAA already has a civilian flight record on him—on August 26, 1937, he was licensed as transport pilot No. 38539. The ticket lapsed on February 28, 1938.

Stall Warning

Aviation scientists have again come up with some startling findings which may result in considerable changes to lightplanes. The findings were made by the National Research Council. Some of its experts, working under Dean R. Brimhall, director of research at the CAA, set out to find whether the average pilot knows when he is about to stall and whether he approaches the stall at times without intending to. Work was done at a number of universities and more than 250 instructors were tested, as well as hundreds of students. Says Dr. P. J. Rulon, one of the top men on the job:

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"People do not recognize the stall and they approach the stall when they do not intend to."

This was found true of instructors as well as students, and gives a strong case for stall warning devices. As Dr. Rulon points out, "some 70 per cent of the fatal or near-fatal accidents to private pilots have been found due to the stall." So plain is the moral that even insurance underwriters, notoriously conservative about accepting the value of new safety gadgets, have already offered to reduce rates if stall-warners are put on planes. "For instance," says Jerome Lederer, chief engineer for Aero Insurance Underwriters, "in the case of insurance on crop dusting, if the risk is otherwise acceptable we shall reduce the crash rate up to 5 per cent and may go further and insure risks for crash when we might not otherwise have insured."

Some of the stall-warning enthusiasts are now pushing for a regulation making the device mandatory on all planes, but last-minute reports are that CAA looks upon such a rule with dim enthusiasm. Although the findings were inspired by one CAA group, another—in charge of regulations—doesn't react to the findings favorably. "It seems," to quote one stall-warning booster, "that the CAA should coordinate the activities of its various branches." Maybe he's got something.

Big Battle

From our favorite correspondent south of the border we hear that one of the greatest peace-time battles in aircraft history is being organized in Argentina. The enemy is the grasshopper. Our correspondent hastens to add that this is not a gag. "If you have never seen a locust plague," he says, "it's something difficult to describe. The entire sky is black with the things for hours." The battle is being fought with helicopters—11 Bell jobs—under a contract with the Argentine Department of Agriculture. Among those supervising the work will be C. J. Tippett, former CAA representative in Argentina, who was recently made a Cavelhiero and given an Aeronautical Medal of Merit by the Brazilian Air Ministry—first time the award was ever pinned on a civilian. END

"AND THERE I WAS..."

FLYING will pay $10 for every "And There I Was . . ." item which is accepted. Address: "And There I Was . . .", FLYING Magazine, 185 N. Wabash Av., Chicago 1, Ill.

A GROUP of cadets were circling the base field at Corpus Christi, Tex., when the following came over the tower radio:

"Blue Beetle to Batman. There's a bandit on your tail. Careful."

"This is Batman to Robin. Let's go kid."

"This is Superman. He's in my sights now." (Imitation of machine gun noise.)

"Bugs Bunny to tower. What's up doc?"

At this point the tower operator broke in demanding who the imbecile was who started all this nonsense. After a long pause, a bold member said:

"There's no one up here but us sparrows, boss."

William C. Kneer

IT WASN'T unusual for instructors to forget and leave their parachutes in the cockpit when they stepped out to let a student solo. And it also wasn't unusual for the parachute to fall out when the student put the plane on its back.

One day one of these parachutes came back in an old automobile driven by a farmer. As he climbed from the jaloppy, the farmer fought with the billowing silk, canvas and straps of an opened canopy. I asked why he had pulled the ripcord.

"I didn't know that I was doing anything wrong," he answered. "I found it in my cotton field, picked it up by its handle . . . and then it flushed."

James E. Wolfe

THE Flying Fortress *crew grew tired of the pilot riding his foot on the bail-out alarm switch after being fooled and scared half stiff a couple of times. Then one day the bell clanged through the fuselage and a voice drummed into the pilot's headsets over the interphone.*

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Don Lavin

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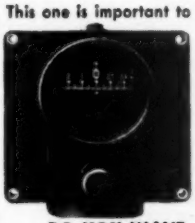

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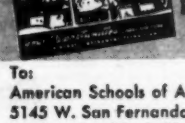

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The Mail Box

(Continued from page 6)

We provided food for 525 and at the price of $1.75 (we think it was high, too) including a fee to the Junior Chamber of Commerce. We did not make expenses, due to high cost of equipment, labor and food.

It is regrettable that FLYING did not stress the most exciting angle of the flight—safety. Isn't it a wonderful commentary on light aircraft development and general pilotage that 1,100 aircraft could participate in a mass cross-country flight such as this with no injuries or fatalities? All credit is due to the pilots for their skillful piloting and enthusiasm.

MARY B. NELSON
President,
Palm Springs Airport Corporation
Palm Springs, Calif.

● FLYING asked Don Downie, aviation editor and staff photographer for *The Pasadena News*, who did most of the leg work on the story, to reply to Reader Nelson's letter. He wrote:

"I'll try to answer in order the points you have raised.

"1. The author was referring to having two runways that could be used at the same time, rather than the ample size of the runways at Palm Springs.

"2. Granted the CAA control operators were the best, but pilots flying the wide right-hand traffic pattern couldn't see their signals. I sat in the control tower for 30 minutes and watched. All they could do was "paint" the final approach with a red light and hope that some of the pilots pulled up.

"3. Why should it be so impressive for 1,100 aircraft to land in three hours? In the easy-to-fly planes the majority had, landing accidents with licensed pilots are rather uncommon.

"4. Wouldn't it be extremely difficult to stagger departure times to avoid congestion at the arrival point? It could be done with military pilots but tougher with private pilots.

"5. The suggestions for Santa Barbara or Ensenada came from I. W. Beeman of the Los Angeles Junior Chamber of Commerce.

"6. The lack of food cannot be blamed on the airport. I'm sure all did appreciate the problems involved. However, to most Sunday-morning pilots, $1.75 is a little steep for breakfast.

"7. You regret that FLYING did not stress the safety angle. The following comments are based on the flying I did that morning:

"I've flown over 3,500 hours in 10 years (commercial license with single and multi-engine, flight instructor, instrument and glider rating) and I've never been as scared in an airplane, barring certain military flying, as I was at the wheel of a four-place Bellanca that morning. That flight pattern was potential murder.

"The difference in cruising speed of the various aircraft made the 1,100 planes potentially 2,000 or 3,000.

"As a news photographer, I was so impressed with the danger of crack-up on the final approach that I spent nearly an hour along the edge of the runway with my camera ready to shoot. That's why FLYING had the photo of the planes coming in on the final approach.

"In my opinion, the only possible way to handle that number of planes is to have a minimum of two runways available for landings at the same time. Have lightplanes use one runway and faster craft, under radio control, use the other strip.

"From the large number of hair-raising stories told after this breakfast flight, I feel that FLYING was entirely justified in commenting on the dangerous congestion of planes."

DON DOWNIE

SEAPLANE TAKE-OFF ON LAND

In "Have You Seen?" (page 49, August issue) is a picture of a land take-off of a *Cub* seaplane made recently by a Wisconsin pilot.

Just for the record, we flew Luscombe 65's off the ground in the same manner and also made landings on floats on the field. The company was then located in Trenton, N. J., and I worked as supervisor of the finishing department. This was in 1940 and your description is the first I've seen of this type of take-off.

ROBERT KISTLER
Bloomsburg, Pa.

FLYING FROM CANADA ON SUNDAY

Pilots returning from Canada on a Sunday certainly get a raw deal from our Government. I recently crossed the border at Burlington, Vt., with a few other unfortunate pilots, and it seems that on Sunday a pilot has to pay the wages of four immigration officers, double time, too, even though these men have to be there anyway to check commercial planes. The sum we paid was approximately $56.

The immigration officers themselves seem quite put out with the private flyer because he does not get someone in Washington to straighten out this unjust practice.

GEORGE READ
Leominster, Mass.

● See "Flying Up to Canada?" page 44.—ED.

DESTROY CONFIDENCE

How can the general public have any confidence in flying and planes when movies such as Joe E. Brown's "Riding on Air" and air shows such as that held recently at Hybla Valley Airport, Alexandria, Va., are produced? An entire misconception of flying is built up and strengthened—not to be eradicated easily.

These air shows and movies constitute a vicious form of propaganda against flying, leaving large sections of the non-flying public more convinced than ever that only fools would fly.

I would like to see pressure brought from the large group of flying enthusiasts through personal contact, newspapers, magazines and radio to prevent such air shows and to bring movie representation of flying and flight training, particularly civilian flying, into line with facts. And

while we're at it we should try to stop the "lunatic fringe" of pilots who, by buzzing, low-altitude stunting and other reckless flying, endanger themselves, their craft and whoever is with them.

MARGARET A. RAMEY

Arlington, Va.

CIVIL AVIATION IN COLOMBIA

It probably has been more or less of a mystery why American lightplane producers sell no aircraft to Colombia. This letter will shed some light on the situation there.

In Colombia, the Autoridad Civil de Aeronautica (CAA), Departamente de Guerra, has control of all civil aeronautics. But it doesn't want private flying because it would detract from the glory of the army pilots and secondly, it would create a lot of organizational and supervisory work for the army.

In most countries both civil and military pilots have extensive experience, but in Colombia only the civilian pilot has. This is because military aviation is in a sadly neglected state due to insufficient funds for necessary flight training. So, in order to prevent embarrassment to the army, civil aviation is effectively stifled (civilian pilots have no licenses—including captains of airliners).

Further difficulties are organizational, such as the medical examination, all check flights, insurance regulations, lack of clearly defined private flying regulations, general inefficiency.

The medical examination takes about one week to complete. I took it and it cost $15 in U.S. currency. It must be taken in Bogota, with no exceptions. Imagine every potential pilot within 1,000 miles of Washington, D. C. having to go to Washington and spend one week there. Then when the student is ready for solo he must again go to Bogota for a solo check.

Here's another inefficient regulation. A flying school may not be established at a municipal or any other airport that handles commercial traffic. A school or private plane owner, for that matter, must construct his own airport and then have it certified by an army engineer who will invariably find it unfit. At this writing there is not a single civilian flying school in Colombia, a rich nation of over 10,000,000 people.

Also, reciprocal pilot privileges to U. S. pilots are not granted except to oil company pilots, who are especially privileged. There are only eight such pilots in Colombia. If U. S. pilots in Colombia were given licenses they might take some Colombians flying on a friendly basis who might eventually get the flying bug and purchase some U. S. lightplanes.

You may wonder why U. S. and Colombian pilots can fly at all if no licenses are given. All pilots, except oil company pilots, are given provisional licenses to fly for one certain company only and the company holds the license. The licenses do not hold when not flying for the company. And when a pilot resigns, he has no license. Many American pilots would like to fly light aircraft in their spare time for pleasure and to maintain proficiency —but not in Colombia.

I think the future looks brighter, though, since Dr. Mauricio Obregon, an aviation enthusiast, took over as head of Autoridad Civil de Aeronautica, last March. He personally stated to me that civil aviation has his wholehearted support.

American capital should be invested in establishing flying schools in Colombia. It's a rich country with vast resources still untouched. And it is not necessary to indoctrinate these people to flying since they've known the airplane as the only means of travel for years. Once Colombian Aerocivil gets behind aviation, U. S. lightplane producers should be able to sell quantities of airplanes to Colombia.

JAMES H. T. MURPHY

Balboa, C. Z.

WHAT ABOUT THE STREAK?

A few months ago you ran a picture and a brief description of the *Streak*, designed by Aero-Flight Aircraft Corp., Buffalo, N. Y. What has happened to this plane? Is it in production?

J. W. FRANK

Minneapolis, Minn.

● At present the company is located in Long Beach, Calif. The plane is now completing its ATC tests but no production plans have been worked out as yet.—ED.

END

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MUST sell clean PT-23. Only 40 hours on new engine and prop. Licensed, $1150. G. Ward, RR No. 2, Crawfordsville, Indiana.

PT-26. All new fabric including plywood covering, new tires and propeller. Two full sets instruments, hood, generator, landing and position lights. About 12:00 since major. Beautiful yellow, black trim. Best offer. Hoffer Flying Service, Camden, South Carolina.

FAIRCHILD 24, 175 hp. 1940. 4-place. Less than 500 hours total on aircraft, engine. 64 hours since both majored. Hand-rubbed. Blind flight group. Lear receiver, transmitter. $3,875.00. 8440 Sunset, Hollywood 46, Calif.

PT-26, 200 HP, completely equipped for night and instrument flying. Both cockpits have full panel groups, with moveable hood in rear. Electrical starting system, new propellor, tires and paint. Licensed for night and day. 880 hrs. on frame, 175 hrs. on engine since new. Price $2000. Wm. Kearns, Old Bridge, N. J.

PT-26, 115 HOURS total, licensed, 2-way radio. $1500.00. Capt. J. R. McComlr, Kirtland Field, Albuquerque, N. M.

GRUMMAN

GRUMMAN Goose J4F. State price, condition, total time and time since OH on hull, engines and props, first letter. Also A&E Commercial pilot for South American assignment. Wm. H. Moebus, Municipal Airport, Oakland, California.

HOWARD

DGA-15-P 5 place nite instrument. Hand-rubbed. 10:00 since major, $3750.00. Hoffer Flying Service, Camden, South Carolina.

1 HOWARD GH3 Model. Total time engine and plane 236 hours. Just being completed in painting, ten coats green colored with cream, new upholstering, new carpet on floor, new tires and complete with radio and instruments. Price $6500.00. E.V. Wing, Gerber, California.

HOWARD DGA15P 450 hp. Wasp. 1943. 5-place. 460 hrs. total since new. Licensed day and night inst. flight. Airline radio. 3 receivers. 2 transmitters. Loop. Marker beacon. Complete blind flight insts. Flares. New custom interior. New 40-coat hand-rubbed finish in dove grey, cardinal red. Like brand new. $8,750.00. 8440 Sunset, Hollywood 46, Calif.

GLOBE

GLOBE Swift 125 H.P. Only 30 hours. Instrument rating. Aeromatic prop. Steerable, swivel tail wheel. Seat covers. Perfect condition. Contemplating four place ship. Cost $5850. Sell for $4500. Jefferson Motor Car Company, Beaumont, Texas.

LUSCOMBE

LUSCOMBE 8-E de luxe. Mfg. Dec. '46. Continental 85, 125 hours A&E. Primary blind group of first line instruments. Bendix VHF Flitefone. This ship has wheel pants, landing lights, heater, starter, generator, all the extras. Interior two-tone maroon. $4200 to duplicate. Price $2995. Interstate Airmotive, Inc., Lambert Field, St. Louis, Mo.

LUSCOMBE Silvaire 8-C 75 HP. 2-way R.C.A. radio, loop and trailing antenna, lights, battery, generator; bank and turn and rate of climb, sensitive altimeter; cruising prop., fuel injector, 500-mile cruising range; 2 extra factory-installed wing tanks; 10 hours since wings recovered and plane re-licensed; motor in excellent condition. Price $2,195. Judge Cullen Briggs, Courthouse, Corpus Christi, Texas.

MONOCOUPE

MONOCOUPE 1941. Total time 650 hrs. 5 hrs. since major overhaul on engine. No time since 100 hr. check, two way Lear radio, loop licensed, day and nite instrument, wheel pants, $1975.00. St. Louis Flying Service, Kratz Airport, St. Louis 21, Mo.

PIPER

PIPER CUB J3, 1946. 65 h.p. Franklin engine, 340 hrs. good condition. $1400.00. E. R. Diller, Pandora, Ohio.

PIPER Super Cruiser, manufactured Oct. 1946. 175:00 never cracked, $2500.00. R.M. Layton, duPont Road, Wilmington, Del.

PIPER Super Cruiser 1947. Latest type purchased May, hangared, simonized, flown 15 hours. Definitely new, unscratched. Best reason for selling. $3,195. Will trade new or used car or cars on part or whole. I. Walter Sell, 400 Franklin St. Johnstown, Pa. Telephone 21-231.

TWO 1946 J3 Cubs A-1 condition. Always hangared, $1150.00 each. Columbus Airways, Inc., Muscogee County Airport, Columbus, Ga.

PIPER Cub J3, 1946 Cont. 65 h.p. 135 hrs. Total time. Relicensed. Only Pilot private owner, always hangared. Family illness. Best offer for quick sale. W. A. Woodruff, 2300 Avalon Place, Columbus 3, Ohio. Phone Fairfax 6617.

REARWIN

REARWIN Cloudster Instrument Trainer 8135T, 120 Ken-Royce. 1942. Low time. Dual horizons, directionals, and all instruments. Trail, fixed antennae. Newly finished. Maintained by Pan-American Airways. Cruises 120. Inexpensive operating. Perfect instrument trainer for G. I. program. $1,950.00. 8440 Sunset, Hollywood 46, Calif.

REARWIN Cloudster instrument trainer. 2-way radio rear seat, receiver front seat, blind flight group both seats. 5 hrs. since complete recover and engine major. An excellent aircraft throughout. Price $2475.00. St. Louis Flying Service, Kratz Airport, St. Louis 21, Mo.

REPUBLIC

REPUBLIC SeaBee. Total time 40 hours. Two-way radio. Reversible prop. Complete instruments. Best offer over $5500. W.K. Giroux, Momence, Illinois.

SALE or Trade SeaBee. First 100 hour just completed. All extras, including hour meter. De luxe airplane, same as new. Always hangared. Private owner. Price $4500 or will trade even for Stinson 150 or 165 comparable condition. A. J. Mann, 2341 W. Franklin, Evansville, Indiana.

SEABEE RC-3. New April '47. 38 hours A&E. Bulletins compiled. Hallicrafters transceiver, cross-country panel, reversible prop, steerable tail wheel. Beautiful special red and white paint job with blue pin stripe. Better than new $4950. Box 539, % Flying.

SEABEE RC-3. New March '47. 30 hours A&E. Bulletins compiled. Hallicrafters transceiver, cross country panel, new reversible prop, new battery. Never damaged. $4500. Box 540, % Flying.

SKYRANGER

SKYRANGER. Excellent condition. Landing lights, electric starter, extras. Always hangared. Less than 300 hrs. total time. $2050.00. Columbus Airways, Inc., Muscogee County Airport, Columbus, Ga.

STEARMAN

STEARMAN PT-17. Only 168 hrs. since overhaul. Refinished red dope, silver. Newly finished propeller. Believe it cleanest in country. $975.00. 8440 Sunset, Hollywood 46, Calif.

PT-17. GOOD condition. 300 hours on engine. Wooden propeller. Relicensed June. Must sell. $750. L. A. Denson, 575 Orange St., Macon, Ga.

STEARMAN PT 13B. TSO 422 hrs. Licensed and flying. Steel prop, extra equipment, good fabric, better wire for this one. $875.00 Al Rad, 743 Mass. Ave., Cambridge, Mass.

NAVY Stearman. Hangared, excellent condition, color red and black. Deliver for expenses. $900. Jack Petersen, Worthington, Minnesota.

STINSON

1947 STINSON Voyager 150. Blue color, five coats of wax, Radio Transmitter, receiver, loop, landing lights, Kollsman Directional Compass, Directional Gyro, turn & bank, 8 day clock, sensitive altimeter, Sperry altitude Gyro, Koppers Aeromatic, propeller, extra Sensenich propeller, seat covers, 93 hours, never damaged. No trades, have $7650 invested in plane. Privately owned. Need larger plane. Will deliver to best offer. Box 537, % Flying.

STINSON AT-19, total time sixty hours, license five place, two-way radio. Must sell. What do you offer? Albermarle Flying Service, P.O. Box 247, Elizabeth City, N. C.

STINSON 10A. 90 hp. 3-place. New tires. Just relicensed. 50 hrs. since engine completely majored, blind flight group, spare engine. $2350.00, or consider good 1946 Champion or Cub on trade. Duane Johnson Flying Service, Carbondale-Clifford Airport, Box 98, Clifford, Pa.

STINSON Voyager. In perfect condition. No time on engine since top overhaul. Two-way radio, blind flight group, landing lights, excellent fabric, clean inside and out. Privately owned and always hangared. Must sell in two weeks. Price $1675.00. Columbus Airways, Inc., Muscogee County Airport, Columbus, Ga.